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AND

HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING BEE-KEEPING.

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TO OUR READERS

ONCE again we have the pleasure of rendering our acknowledgments to all who have aided us in the completion of another Volume of the JOURNAL OF HORTICULTURE.

In its production and presentation the best efforts of men of long experience, as well as of probationers of high promise, have been combined with happy results—the full maintenance of the high standard of popularity that our weekly issues enjoy in the Horticultural world.

Very pleasant it is for us to feel strong—as we do—in the strength of our helpers. Men who have spent years of active service in Gardening, amateurs with special knowledge and facile pens, accomplished men of science, with talented artists, are among our valued associates; and seekers for information stimulate by their inquiries the best endeavours to produce it, and rarely, we think, without a measure of success. On that strength we rest firmly; and notwithstanding small changes, as incidents of life, we are convinced that the staff of the JOURNAL OF HORTICULTURE was never stronger than it is to-day.

All who have shared in the completion of the Volume, which embraces the first half of the present year, may be assured that their work is approved by the wide constituency of readers who look to this their favourite Journal for guidance on subjects which are appropriate to its pages.

The Editors also very warmly appreciate both the personal aid and the public approval of which they are the recipients, accepting them as a reward for past endeavours to be useful, and as an incentive to greater zeal in the cause of Gardening.

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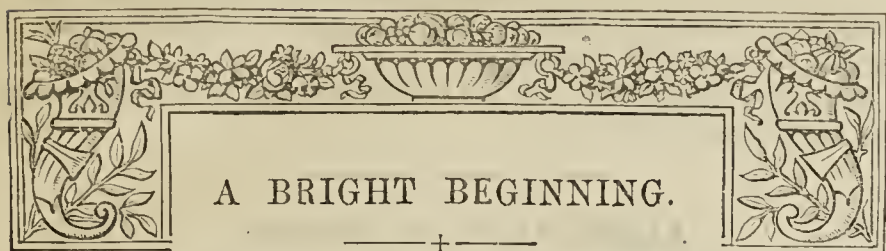
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BRIGHTLY opened the new year after a week of gloom in the metropolis such as our readers far away from the smoke-laden fog can scarcely be expected to realise. It may be described as a dismal stifling night of more than a hundred consecutive hours; most trying to delicate persons, fatal to many; injurious to flowers; perplexing to travellers, and seriously obstructive to business; in fact, bad for everything and everybody, at least every honest body except oil-men, coal-men, and gas-men, who profit by the sale of their wares.

An enterprising newspaper man, with the object of gaining information about the fog and the gas supply, sought out the manager of the London Gas Light and Coke Company, and here is a small part of the dialogue:—"In former years we had fogs as thick and black as those of last week, but they only lasted a day or two; this fog lasted six days. 'Last Thursday's consumption of gas (December 24th) was the greatest, for any single day, in the Company's history—128,000,000 cubic feet. Can you realise that?' I really could not, I should like to see the man who could; 128,000,000 cubic feet of gas, it is like being lost in the *ewigkeit*. Let me put it in my way. On that historic Thursday the Company manufactured as much gas as would form a column 24,242 miles high and 1 foot across. The height of the column would be about equal to the circumference of the earth. Five millions of human beings creeping, crawling, blinking, coughing, feeling their way and missing it, underneath their brown-black, poisonous 'counterpane' of fog and smoke, upon the 'greasiest' and most crowded spot of its size in this world—and ordering from one of several companies 24,000 miles of gas for a single day's necessities—such is the picture. Can the gentle reader rise to the level of the conception?"

The fog vanished before the old year closed, and the new year opened balmy and clear. It was like a change to a new world, and the wheels of trade ran merrily round, and the spirits of the groping mass of humanity rose once more. Let us hope that the bright beginning may predicate a season more favourable, as a rule, to the gardener and amateur than the last, when the frost and snowstorm after the middle of May ruined a bright prospect of fruit, and subsequent rains spoiled flowers innumerable, brought out the Potato disease, and turned large tracts of country into lakes. Yet in many districts the rain was wanted for replenishing the springs and averting a water famine, while the growth of many trees was arrested through the abnormally dry state of the subsoil. The springs are now supplied, the soil moist. We will, then, as the Chaplain said last week, "hope on," and join in the wish, by him expressed, that all our writers and readers will enjoy a bright and successful year.

We were about to draw some further deductions from the experience of the year that is gone when what will follow came to hand. The excellent and comprehensive review last week was by the oldest of our regular contributors; the communication we have now the pleasure to insert is from one of our newest writers. With the old hand of last week, so young and so free, still with us; and this young hand, guided by a thoughtful head, to the fore, we have in these respects, and all our other able coadjutors happily with us too, what we regard as a "bright beginning." Our young

friend's homily, entitled "Lessons from the Past and Plans for the Future," is as follows:—

"With the beginning of another year an epoch of great mental and physical activity will be opened to all gardeners who have the honour of their calling at heart, and who pursue it with that genuine earnestness for which Britishers have long been famed; and so long as each successive generation of gardeners is animated by the laudable desire to fully uphold, and if possible enhance, the reputation gained by their predecessors, the dignity of their calling is not likely to suffer, or their own efforts to go unrewarded. There is, however, no denying the fact that in a vast number of cases gardeners are at present labouring under great difficulties, and in order to conduct in a satisfactory manner the gardens under their charge a mind quick to grapple with difficulties and ingenious in devising plans for future guidance are important factors, if not of paramount importance. There is always much to be learnt from failures, so that before arranging plans for the present year a revision of the past one is likely to be of immense service, and we can conceive no more useful way of spending a few evening hours at the present time than by employing them in taking a retrospective glance, and in forming definite plans for the future.

"Although the long, wet summer of the past year will not, let us trust, be repeated for a long time, yet it will doubtless have the effect of causing those who have suffered severely in any particular direction to use their utmost endeavours to avert a similar calamity on any future occasion. In the northern and midland counties some of the sharpest lessons seem to have been learnt by extensive growers of late Grapes, who were reluctant to afford a little fire heat during the early stages of growth, and watched in vain for a lasting improvement in the weather. When too late they applied artificial heat with a vengeance, but without attaining the desired result of ripening a crop of Grapes, which in other respects were good. As these notes are being penned the mind dwells upon the widely different practice of two growers who each started the season with the promise of a fine crop. The result in one case exceeded the most sanguine expectations, and in the other was grievously disappointing. The successful cultivator paid great attention to ventilation throughout the fickle season, utilising as much as possible the solar heat, which came so tardily. A little warmth was also kept in the hot-water pipes each evening throughout the summer months, and also on wet days, while the others saved the fuel in the spring and early summer, and burnt it with a lavish hand when too late, the result being a crop of Grapes, the colour of which was a peculiar mixture of green and red, repulsive to the eyes of all gardeners, and by no means profitable to the grower.

"Then again in the flower garden many failures have been noticed in cases where plants only suited for hot summers have been employed. *Dianthus Heddegi*, *Begonias*, *Marguerites*, and the majority of carpet bedding plants have all proved of great service during the past season. We might enumerate many subjects in each department of the garden from which useful lessons have been learnt, but enough to illustrate our meaning has been given. We will therefore now deal with plans for the future.

"There can be but little doubt that the gardener who lays down some definite course to pursue at the beginning of each season is far better able to take advantage of the weather and other varying circumstances than can be effected by those who work without a definite plan. Extra exertion at special times is in the end a great saving of labour, and is also productive of superior results. The cold, wet, wintry days can be utilised in making stakes, labels, brooms, pegs, cleaning and oiling machines, sharpening tools, so that the fullest advantage may be taken of fine weather when it comes. Frosty mornings are well employed in wheeling manure on to vacant quarters, and in working among the

manure heaps, turning and separating that required for immediate use from the rougher materials which are useful for making hot-beds. The pruning of fruit trees can often be done at times unfavourable for some other operations. A general survey of bedding plants ought to be taken, so that any kinds which are rather scarce may be prepared for propagation at once, and any varieties of Pelargoniums, Alternantheras, or similar kinds which happen to be in a backward state should if possible be given warmer quarters to supply cuttings, or become thoroughly established by bedding-out time.

"Any alterations yet to be effected about the grounds, if pushed on with all possible speed, will allow the fullest benefit to be derived from the labour at command on the approach of more springlike days, when so many affairs require prompt attention. All these things may appear simple, and perhaps to some readers scarcely worthy of serious thought. Many fortunate gardeners who have had throughout their career plenty of labour at their command at all times may not have felt the need of a thoroughly systematic control of the labour they direct; but having by experience and observation proved on many occasions how much may be accomplished by system and perseverance, I am fully convinced of the importance of grasping these facts afresh at the beginning of each year, and of making a determined effort to keep the work of the year well in hand as each season comes round. Infinite pleasure may be derived from performing any gardening operation at the right time, but very little satisfaction is felt when the chances of success are ruined by procrastination."

EDUCATION IN GARDENING.

WITH the object of stimulating effort for the acquirement and dissemination of knowledge in gardening, or, in other words, for affording encouragement to gardeners who are members of horticultural or mutual improvement societies to contribute in the best form to the literature of gardening, a limited number of large silver medals will be presented by the *Journal of Horticulture* during the present year.

These medals will be granted for essays which shall be deemed the best by competent adjudicators on subjects that will be proposed to the members of societies through their secretaries respectively. The medals, already struck, are of a superior character, and as they will only be adjudged for meritorious productions they will, it is hoped, be accepted as evidence of ability on the part of the winners by those who may require the services of intelligent and capable men.

The *Journal of Horticulture* medals for garden literature will not be so widely scattered as to become common, as not more than twelve will, as a rule, be offered in one year.

When a medal is placed at the disposal of a society, or to two or more societies as may be specified, in a district, only members of the society or societies so specified shall be eligible as competitors.

The *nom de plume* of each competitor must be plainly written on the top of his M.S.; his name and address, with motto, to be sent under seal in a separate envelope. The envelope containing the essay to be marked on the top left hand corner with the words "Medal Essay."

The envelopes containing the names of competitors will not be opened until the award has been made, and essays (except the successful one) will be returned to those writers of them who send stamped directed envelopes for that purpose within one month after awards in each case are announced in the *Journal of Horticulture*.

Intending competitors should give in their names to the secretaries of their various societies, who shall inform the Editor of this Journal a month before the annual meeting how many have entered, and, at the same time, state the date of the meeting. The competitors must send their essays direct to this office one month before the said meeting.

Contributors of essays are at liberty to consult books to enable them to acquire what in their view is the best information, but every book from which knowledge is gained for their object must be mentioned at the foot of the essay, and every extract made must be placed under inverted commas, and the source fully acknowledged.

Non-compliance with any of the conditions indicated will disqualify for competition.

The essays must be in the handwriting of the authors of them in black ink on one side only of white foolscap paper, and must contain

not less than 3500, nor more than 4500 words, exclusive of the lists of books consulted.

Sketches may be included when these are requisite or considered elucidatory by the contributors.

The literary ability displayed by the writers will be taken into consideration in the adjudication, but the information conveyed must be of a sound, practical, useful character.

The adjudicators will have power to withhold the medals when the essays do not justify the awards.

ALLOTMENT GARDENS.

THERE can be no doubt as to the increasing demand for such gardens in the vicinity of towns, the larger ones especially. Kenilworth, in Warwickshire, is fast becoming a great centre for horticultural market produce, and they have also a flourishing horticultural society, with its annual exhibition. This led to a demand for allotment gardens, and the Kenilworth Allotment Association was formed in the early part of 1891. A field of rather more than 2½ acres was secured for this purpose, but owing to the lengthened period of frost and snow last winter nothing could be done in breaking up the ground until after Good Friday. The soil is of a rich loamy character, and the allotments were so well cultivated and cropped that at an October Exhibition held by the Association a quantity of fine vegetables were exhibited. As every allotment was at once taken up more ground was sought for, and an application was made to the Earl of Clarendon for two adjoining fields, and these have been secured—in all nearly 8 acres, each allotment consisting of one-eighth of an acre, at an annual rental of 10s. each. There are sixty-one allotments, and there were sufficient applications for all in the new plots of ground, and in order that all the applicants may be on a level balloting was resorted to.

Rule 2 of the Association provides that in the event of any allotment holder leaving the town, and having planted upon his allotment any fruit or other valuable trees that become non-removable the Association may, but shall not be bound in any way, to have a proper valuation made, and may make an allowance of a sum, not exceeding the amount of the valuation, to the outgoing tenant, and charge the same to any future applicant for the ground.

In the neighbourhood of Birmingham there are many hundreds of allotment gardens, and more are wanted; but the difficulty lies in getting permanent sites so close to the rapidly extending city, and this will be the case in other large manufacturing centres.—D.

SIMPLE MOUSE TRAPS.

NOTHING can be more simple, cheap, and effectual than what is known in gardens as the figure-4 mouse trap. It only requires a brick and three strips of wood about half-inch wide and one-eighth inch thick. There are three lines in a printed figure 4, occupying vertical, oblique, and horizontal positions, hence for the sake of brevity and clearness we will name the three sticks vertical, oblique and horizontal, and these terms will of course indicate the position of the sticks when the trap is set. The length of the sticks are as follows:—Vertical, 4½ inches; oblique, 6½ inches, and horizontal, 9 inches. Cut the vertical stick level at one end and bevel off the other; half an inch from one end of the oblique stick and on one of its flat surfaces make a notch by pressing the knife straight in for about one sixteenth of an inch, and then cut a piece out by making a slanting cut upwards; the other end of this stick should be bevelled off from the under side, that is, the opposite side to the notch. A notch should be cut in one end of the horizontal just as described for the oblique. Keep this notched side upwards, and pointing towards you; then 5 inches from it, and on the left side of the stick, make a notch in the following way: Press the knife straight into the side for about a quarter of an inch, then cut a piece out in a slanting manner, the slant to be about 1 inch long and made from the notched end. The other end of this stick is where the bait is tied on and is under the brick when the trap is set. Care should be taken not to use a thick hard bait, or it may take the weight of the brick instead of the mouse.

If the trap has to be set on soft ground a piece of slate should be laid down to set it on, or the ground should be made hard and level and a small piece of slate placed under the vertical stick. The best way to set this trap is to first set the square end of the vertical stick on the ground, or wherever it is required, and its bevelled end into the notch of the oblique stick, and whilst holding the other end of the oblique stick in the left hand, place the under edge of one end of the brick so that it just rests on the notched end of the oblique stick, it will thus form a leverage or balance to

the left hand. The horizontal stick is simply to take the place of the left hand, hence the shoulder cut in its left side should be placed behind the vertical stick and the bevelled end of the oblique fitted into the notch at the end of the horizontal stick; and this is the point where the sensitiveness of the trap can be regulated, for the ease with which it "goes off" will depend upon how the

KLEINIA GALPINI, *Hook, f.*

SOME weeks ago we gave an illustration of a new *Streptocarpus* from the Transvaal, seeds of which had been sent to the Royal Gardens, Kew, by Mr. E. E. Galpin of Barberton, after whom it was named by Sir Joseph Hooker. The *Kleinia* represented in the



FIG. 1.—KLEINIA GALPINI.

bevelled end of the oblique stick is fitted into the notch of the horizontal stick. I have tried many kinds of traps for mice, all of which they soon got used to and too "downy" to be caught; but this brick and three stick business seems to entirely throw them off their guard, they are caught in them night after night as long as there are any left; it is moreover a humane trap, for the mice are dead in an instant.—J. H. W.

woodcut (fig. 1) is another plant for the introduction of which cultivators are also indebted to Mr. Galpin, whose name is applied to it as its specific title. The drawing so clearly depicts the characters of the plant that a description is scarcely needed, except to remark that the leaves are fleshy, and the florets, which are densely crowded in the flower-heads, are brilliant orange, a novel and pleasing shade of colour. As it is compact in habit of growth

it is well adapted for culture in pots, and it continues flowering for a long period during the late autumn and early winter, a time when such plants can be most appreciated.

At Kew it has been grown in a cool and somewhat dry house, but would no doubt succeed in an ordinary greenhouse. If seeds are produced freely, and propagation can be effected by means of the leaves, a stock will soon be obtained.—C.

GOOD RESOLUTIONS.

UNLESS I am much mistaken, gardeners, as a body, are much given to forming good resolutions, and equally addicted to departing from them. Let me, however, hasten to add that these offences are mostly of a venial description. At the same time I hold that when good resolves are made they ought to be more adhered to than is often the case, and if the truth must be told, I am quite an old offender in the matter; but then old poachers make the best of game keepers. How often, when it is seen what mistaken practices we have been following, do we not decide that such blunders shall not occur again, and yet lack the force of will to guard against their repetition? Take, for instance, the annual vegetable seed order. Catalogue after catalogue is closely scanned; novelty after novelty is marked, and, it may be, ordered, and that, too, in addition to the usual selection of old favourites. And what is the inevitable consequence? If not exactly chaos, it is dire confusion long before the season is past. Mistakes may not be made as far as sowing or planting is concerned, but the confusion certainly results when the kitchen has to be served with vegetables. If there is not enough of one variety to serve several days, changes being constant, the cooks are puzzled, and the employers most probably disgusted; just when the latter have found something to their taste something altogether inferior substituted. In not a few cases if the gardener neglects to form a resolution to depart from such wrong practices he receives a strong hint. What, therefore, is, I maintain, a good resolution in this case, is to be content with a far more limited number of varieties, and to grow these in much larger quantities than heretofore.

What every grower has to decide is which varieties succeed best with him and also give the greatest satisfaction on the dining table, and then to abide by them till something proves itself superior. This does not involve completely ignoring all novelties, but, on the contrary, a few may well be tried every season, taking care, though, that these shall not be unduly favoured, as too often happens. Let the trial varieties, not necessarily high priced novelties, fare the same as the rest, and if under such conditions they surpass older favourites for two seasons in succession, then by all means give them the preference. The change should be made in no half-hearted manner. Let the old ones be placed in the background or, better still, disappear altogether, and then the good resolution to avoid growing a confusing number of varieties will not be frustrated. Space forbids all attempts to particularise extensively, but I would like to point out that it is Potatoes and Peas that are too often grown in confusing numbers.

Good resolutions are, however, more often broken in the matter of overcropping than in any other direction I can name. This does not apply with much force to vegetables, unless the extra fine or prize-winning produce is required, but relates more especially to fruit culture. There is an old saying that each gardener should call in the aid of his nearest neighbour when the time has arrived for thinning out the crops, and there is no mistake about the frequent need of such extraneous help. All of us are ready enough in condemning overcropping in our friend's case, but cannot make up our minds to do what is right by the trees, Vines, and plants under our own control. We see, when too late, that the thinning was not nearly severe enough, and form a resolution that no such blunder will be made in the next season. How often these decidedly good resolutions adhered to I will leave it to the consciences of my readers to decide. Mine is certainly far from being clear in the matter, and yet nobody more fully realises the folly of attempting to do too much. We are too apt to flatter ourselves that causes other than overcropping were responsible for partial failures, and that we know the remedy. Sometimes there may be something in this, but, more often than not, the neglect to thin out the crops somewhat in accordance with the state of the plant, trees, or Vine's health, both below and above ground, is the sole factor in the failure, nothing but guarding against a repetition of overcropping remedying the evil. Occasionally there may be some excuse for overcropping, gardeners not being wholly their own masters; but there is no mistaking the fact that next to nothing is gained by committing this error of judgment, while the chances are that the crops will be of far less value than would have been the case if judiciously thinned. Thus, for instance, if Grape Vines are not overweighted the produce is superior in quality,

realising the best prices in the market, taking prizes, and, what is of still greater importance, gives the most satisfaction to all discriminating employers. The same rule holds good with Melons, Peaches, Nectarines, Figs, Apricots, Pears, Plums, Apples, and Strawberries, and it is also worthy of note that when trees and Vines are not recklessly cropped they retain their health and vigour for many years, whereas those repeatedly overcropped soon arrive at an unprofitable state. Too many varieties of fruit are equally as objectionable as unlimited selections of vegetables, and among the many good resolutions formed and adhered to ought to be one to the effect that a weeding out process shall commence at once.

It is usual at this period of the year to give good advice to the younger gardening brethren, but I have had a fling at the older sinners first, and have let them off lightly too, or more so than many deserve, reserving a few strictures for the young men to the last. During my bothy life I formed a great many good resolutions, and so also did those associated with me, though I am sorry to say not many of them were kept. One thing I can truthfully assert—viz., that none of my time was wasted in publichouses, and though not an absolutely total abstainer, I would yet strongly advise all under gardeners to let the drink alone. It is an expensive and not unfrequently a most debasing luxury, and one of the very worst that can be habitually resorted to. As a matter of fact there is, or ought to be, plenty of amusement of a light and instructive character within easy reach of bothyites if only they will pull together. No other profession, probably, can boast of such advantages in the way of books and papers published for their sole benefit, and a selection of these, a daily paper, and two or three weeklies ought to be taken for every bothy. It would be only right that the owners of gardens should provide the foregoing. But if all pull together subscribing for a few papers is not such a very serious affair, and is money very well spent, all papers (other than the most stupid novelettes) being of a more or less educational character. Advantage certainly ought to be taken of the series of lectures delivered in connection with the Technical Education scheme, those relating to agricultural chemistry and horticulture generally being most instructive. The rudiments of botany might be mastered with advantage, but beyond that I would not advise young gardeners to go. There are so many other attainments of more value to gardeners than advanced botany, not the least among which ought to rank that of being able to write plainly and well upon most subjects relating to gardening. There are plenty of good text books, and working up a subject from, or with the aid of these, is of the greatest educational value, as well as profitable in later years. A knowledge of geometrical and free-hand drawing is well worth striving after, and many a good place might be had by British gardeners if only they could speak one or more continental languages sufficiently well to be understood. I do not advise any young man to resolve to give up the whole of his leisure to study, but a fair division should be made, not less than three nights in a week being principally devoted to self culture.—W. IGGULDEN.

SEMPERVIVUMS.

It is perhaps fortunate that the last decade of the nineteenth century is what may be termed a period of practical thought, and that we have become somewhat sceptical as to the possibility of the discovery of the elixir vitæ, or some enthusiast might have deemed that the name of this interesting genus of plants warranted him in presuming that some decoction or infusion of their leaves might lead to the attainment of that dream of many—eternal life on earth. Our old botanists had, however, not distinguished between the Sedums and the Sempervivums and grouped them under the former title, or, in all likelihood, Culpepper would have offered some wonderful commentary on the power of the Sempervivum for preserving life, and the name derived from *sempervivo*, I live, would at least have given some colour to its claim. We, in this sadly degenerated age, must, however, confess that we are profoundly lacking in the virtue of faith; and even if we leave (as Culpepper says) "Dr. Reason awhile and come to Dr. Experience, a learned gentleman and his brother," we must contend that tried by "Dr. Experience" the Sempervivum is only mortal and must rank with the "Everlastings" or "Immortelles," in fact must take only second place to them. The truth is the rosette, as we may call the individual plant, always dies after flowering. The popular name Houseleek is also rather an unhappy one, being suggestive of the well-known vegetable which is the chief ingredient in the soup known to Scotch readers as "Cockie-leekie," but which I am degenerate enough to express dislike of; indeed, the Leek in any form is unendurable to me.

But a truce to this badinage, and let me speak of the Sempervivums, their beauties, uses, and culture. They are extremely

interesting with their symmetrical rosettes of various shades, and this symmetry and uniformity has made them, like their congeners the Sedums, popular among "carpet bedders." I must, however, contend that any formal arrangement of the Sempervivums detracts from their beauty, and makes them look excessively stiff. If grown in clumps in the border or on rockwork the effect is entirely different, the beautiful arrangement of leaves radiating from the centre of the plant and the varied hues of the individual leaves combining to make a little clump full of attraction to those who can appreciate the value and beauty of the plants. The structure is curious, and the succulent character of leaves shows how exquisitely adapted are the plants to the situations in which they are commonly found—i.e., on rocks, where they have little sustenance, and where they are generally exposed to the full glare of the summer sun. It is certainly impossible here to do justice to or describe fully the varied beauties of the different species. Many of them are much alike, but still with most there is some distinction either in colour of the ground tint of the leaf, colour of the tip or edge, form of the leaf, or some other peculiarity which to the enthusiast renders the genus particularly interesting. Then from the centre of the plant will rise a thick fleshy flower stem, which bears flowers of varying colours according to the species, flowers which if under glass remind one of some gems, so exquisitely formed are they. These forms are of various shade of red or yellow.

The uses of the Sempervivums are many, as, besides being adapted for carpet bedding, they are well suited for pots or for rockwork or borders. Many a sunny window might be rendered extremely interesting by a small collection of these flowers, and, as most of them increase freely, a stock once obtained will last for generations, besides affording a few plants for friends who may be attracted by the delicate carving of the plants. It is, however, on a sunny ledge of the rockery that the Sempervivums are most at home, and it is there that they will afford most pleasure. A little mound of *S. Laggeri* with its pretty rosettes finely netted with silvery cobwebs is always pretty in summer. This, which is sometimes called *S. arachnoideum majus*, is larger and finer than the commoner *S. arachnoideum*, the Cobweb Houseleek.

There is now a large number of species in cultivation. Most of these are hardy, and it is to the hardy species that I have confined myself; but even these are very pretty when grown under glass in a frame or cold greenhouse. It is somewhat difficult to select varieties for notice. One of the best known and among the most attractive is that known as *S. californicum*, which is, by the way, not a native of California. This forms fine large rosettes, but is shy in flowering. It is somewhat curious to notice with this species how a plant which has formed a large rosette from being planted singly in good soil becomes crowded by its numerous progeny, and eventually assumes very modest dimensions. *S. montanum* is a very neat kind, smaller and greener in colour, and with a different arrangement of leaf than the former, but it is also a much freer bloomer. This has red flowers. *S. Pittoni* is a pretty species with yellow flowers. *S. Reginae Amalie* is a species with fine large rosettes and with yellow flowers. *S. triste* is of a very dark green colour, and is in this respect very distinct. I got a very neat little Sempervivum a little time ago under the name of *S. hirtum*. This is profusely covered over with little hairs, and is very pretty.

S. stenopetalum is a very pretty species, with sharp spines at the points of the leaves. One I had several months ago under the name of *S. Conolli*, but which I also see catalogued as *S. Comolli*, is very pretty, but has not flowered with me yet. It is of a pretty dark colour, with deeper coloured tips. *S. arachnoideum*, or *arachnoideum*, is fairly well known as the Cobweb Houseleek, so called from the network of silvery hue which grows over the leaves. This is very beautiful in summer. I have already mentioned *S. Laggeri* of similar character, but larger, finer, and a better flowerer than many. There are a considerable number of others, and a good collection forms a very interesting study, but I am afraid I must refrain from mentioning more at present.

The Sempervivums are so easily grown that details of culture are unnecessary. It is well known how well the common Houseleek, *S. tectorum*, grows on house tops with apparently no vestige of soil, but if free blooming is desired a little old mortar rubbish in the soil will be found advantageous. The Sempervivums increase freely by offsets, and are generally propagated by means of these; but another method is to break the leaves carefully off, and after allowing them to dry for a few hours to place them point up on the surface of sandy soil in a box or pot. After some time these take root, and a young plant is formed at the base of the leaf. Seeds of some species can be obtained, and should be carefully sown in light sandy soil, and placed in a frame or greenhouse. I have but inadequately dealt with these curious plants, which are great favourites of mine, and which present so many features of interest that no one need regret having made a beginning with them.—S. ARNOTT.



EVENTS OF THE WEEK.—As noted in another paragraph the Royal Horticultural Society's Committee will meet on Tuesday, January 12th, at twelve noon, in the Drill Hall, James Street, Westminster. At 2 P.M. on the same day the Provisional Committee of the proposed International Fruit Show will hold their first meeting in the Cannon Street Hotel. A sale of Orchids will be held at Messrs. Protheroe and Morris's Rooms, Cheapside, on Friday, January 8th, when Messrs. Linden offer numerous plants of *Cattleya Warocqueana*, together with the handsome *Cattleya Rex* and several other novelties.

— THE WEATHER IN THE METROPOLITAN DISTRICT has been much brighter and colder during the past few days. Frosts prevailed on Monday and Tuesday, the lowest temperature registered ranging from 9° to 15° below freezing point.

— THE ROYAL HORTICULTURAL SOCIETY will hold its first New Year's meeting on January 12th in the Drill Hall, Westminster, where the Fruit, Floral, and Orchid Committees will assemble at twelve o'clock as usual, and the Scientific Committee in the Council room at 4 P.M. A paper on "Winter Vegetables" will be read at 3 P.M., by Mr. W. Iggulden, Marston Gardens, Frome. Arrangements for 1892, and a list of the Society's Fellows have been issued, and non-Fellows may obtain all particulars on application to the Secretary, 117, Victoria Street, S.W.

— CHRYSANTHEMUM SHOW DATES FOR 1892.—The following are the dates of the Shows advertised in our columns up to the present time:—Kingston, November 8th and 9th; Portsmouth, November 2nd, 3rd, and 4th; Birmingham, November 9th and 10th; Hull, November 16th and 17th; Bournemouth, November 9th and 10th.

— GARDENING APPOINTMENTS.—Mr. Alfred Hames, flower garden foreman under Mr. T. H. Crasp, Canford Manor, Wimborne, has been appointed gardener to Alfred Pope, Esq., Wrackelford House, Charminster; and Mr. Charles Foster, for the past two years gardener to E. P. Martin, Esq., Dowlais House, Dowlais, has been appointed gardener to Morgan S. Williams, Esq., Aberpergwm, Glyn Neath.

— MAGENTA QUEEN PRIMULA.—Messrs. B. S. Williams & Son ask if we will make some reference to blooms they have sent of this Primula. It is easy to do so in the case of one variety, but when several arrive individual references to them are not always practicable. The blooms before us are of full size, great substance, and rich glowing magenta in colour, further brightened by an orange scarlet eye.

— SEEDLING CHRYSANTHEMUMS.—Mr. Robert Owen sends us several blooms of his seedling Chrysanthemums. One, a yellow, a seedling from Beauty of Castle Hill, is very fine indeed. It is of the Sunflower type, but with broader florets, and free from the silvery tint on the reverse side. A rosy lilac, with incurving florets, has a resemblance to Madame C. Audiguier, and must be seen again. It is from George Atkinson. The other varieties are not in condition for indicating their true character.

— THE DEVON AND EXETER GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The programme for the spring session, 1892, is as follows, the meetings to be held at the Guildhall, Exeter, at eight o'clock each evening:—Wednesday, January 20th, Mr. Alfred George, Heavitree (formerly head gardener at Bicton); subject, "The Cultivation of the Peach and the Nectarine, with Hints on Pruning." Wednesday, February 3rd, the Rev. A. H. Cruwys, Cruwys Morchard Rectory; subject, "How to Grow, and How to Show, Vegetables for Exhibition." Wednesday, February 17th, Mr. J. T. Ebbutt, Winslade Park Gardens; subject, "The Cultivation of the Violet." Wednesday, March 2nd, Mr. F. W. Meyer, Messrs. Veitch's Nurseries, Exeter; subject, "Alpine Plants." Wednesday, March 16th, Mr. G. B. Lansdale, Oxford Terrace; subject, "The Culture of the Carnation by Amateurs." Wednesday, March 30th, Mr. Andrew Hope (at Messrs. Veitch & Sons); subject, "Daffodils and Narcissi, Illustrated with Typical Specimens." Wednesday, April 6th, annual business meeting. Communications to be addressed to Mr. A. Hope, at Messrs. Veitch & Sons, High Street, Exeter.

— It would be superfluous to say anything in commendation of a work which has been so long before the public as Mr. Rivers' *MINIATURE FRUIT GARDEN*, and which has now reached its twentieth edition. The original work was written by Mr. Rivers. It was revised and re-written by his son, Mr. T. Francis Rivers, who added greatly to its value by giving the results of his own experience, and now in the twentieth edition we have an appendix on "Insect Pests" by Mr. H. Somers Rivers, the grandson of the original author. This is a valuable addition to the work, and is carefully, scientifically, and well done. The volume is beautifully got up, well illustrated, and cannot fail to have a large circulation.

— *CHRYSANTHEMUM MRS. NEEDS*.—Doubtless Mr. J. Pithers on Chrysanthemums, page 565, *Journal of Horticulture*, December 31st, has been misinformed about Mrs. Needs. This variety was raised from seed and sent out by us in 1889. The description tallies with that given by Mr. Pithers. We may mention we named it after the wife of Mr. Needs, the late Secretary of the Kent County Chrysanthemum Society.—JOHN LAING & SONS, *Forest Hill*.

— THE total RAINFALL AT CUCKFIELD, SUSSEX, for December was 4.12 inches, being 1.38 inch above the average. The heaviest fall was 0.74 inch on the 1st. Rain fell on twenty-two days. Total for the year 35.36 inches, being 4.63 inches above the average. Highest temperature 53° on 3rd and 4th; lowest 16° on 25th. Mean maximum 46°; mean minimum 34°. Mean temperature 40°. Partial shade readings 1° above the average.—R. I.

— FLOWERS IN SICK ROOMS.—Flowers may be in the room by day, but should be removed at night, and should always have the lower leaves stripped off the stalks before putting them in the vase. It is these leaves, left in the water, which make it so disagreeable, especially in the case of Mignonette, Asters, and Wallflowers. Hyacinths, Daffodils, and all flowers with juicy stalks, soon make the water unbearable.—(*The Queen*.)

— PROSPECTS IN THE LAND MARKET.—In printing its annual reviews of the property market for the past year the *Estates Gazette* says:—"A number of the most experienced land agents and keenest men of business in the country agree in regarding the prospects of the land market as much more encouraging than they have been of late. 'The agricultural outlook is more promising than it has been for fifteen years past,' says the report of one well-known firm in the midlands. And it is just fifteen years since the great depression began. That opinion is not speculative, but is largely based upon the experience of the year that has just closed."

— GRAPE CULTURE IN ONTARIO.—According to a statement in the *Toronto Monetary Times* Grape culture is becoming an important industry in Ontario. The centre of the Vine cultivation is between Grimsby and St. Catherine's. In Essex, especially on Pelee Island, experience has shown that Grapes can be profitably grown. Some local experiments show a probability that in the near future the county of Norfolk will be added to the Vine land of the province. The quality of the Grapes grown has of late been greatly improved, and so prolific are the Vines that growers have this season in many instances had to be content to take 1½ cent a lb. for good samples. Grape culture is rapidly extending, especially in the county of Welland. This year's price of Grapes is perhaps about as low as they can be grown at a profit, but it looks as if the supply might in future outstrip the demand.

— REPORT OF THE WEATHER DURING THE PAST MONTH AND YEAR.—The weather during the past year has been on the whole very dull and cold, with great absences of sunshine; and if the past year cannot be said to have been exceptionally wet, yet I believe we have had a fair average amount in this district, where our land is so very heavy and cold. The rainfall during the first half of the past year was very light, but since the beginning of August the rainfall has been very heavy. The greatest amount registered here during any twenty-four hours was on August 20th, when 1.13 inch was registered. The total amount during the whole year has been 27.34, against 23.17 of 1890. Rain has fallen on 175 days during the past year. Rain fell on seventeen days during December. The maximum in any twenty-four hours was 0.89 on the 13th; minimum, 0.03 on the 4th; total for the month being 3.46, against 0.55 of 1890. During the past year the thermometer has only been as high as 80° in the shade twice, and only twelve days during the whole year did it reach 75°, the thermometer being on a north wall 4 feet above ground.—E. WALLIS, *The Gardens, Hamels Park, Buntingford*.

— TRUFFLE FARMING.—It is announced on the authority of official figures, that the value of the Truffles rooted up last year by pigs and dogs in France were assessed at £600,000, although, of course, this does not include the large quantity of which no account was rendered by poachers and other unrecognised collectors. At first hand 4s. a lb. is the price at which the Truffles were valued, while the amount they fetched in towns was fully twice as much. What they are worth in London it is not possible for gourmets to learn; but even in Italy—a Truffle country—the black species is often sold for 12s. 6d. It is clear, therefore, that Truffle farming is profitable, and as nearly half the French export—namely, 205,000 lbs., comes to England, the business is not without possibilities to us. There was a time when Truffle gathering was a common trade on the Sussex and Wiltshire Downs.

— THE WEATHER DURING DECEMBER AT RIPLEY, YORKS.—This month was remarkable for heavy rains, severe frost, and thick fogs, the latter prevailing the greater part of Christmas week. The most severe frosts occurred on the 22nd and 25th, when we registered 25° and 26° respectively. Snow fell thickly for three or four hours on the 12th, and was followed by rain, making our heaviest daily fall, the gauge recording 0.86 of an inch. The total rainfall was 4.29 inches, which fell upon nineteen days. Mean reading of barometer, 29.96. Mean maximum temperature, 41.6°. Mean minimum temperature, 26.3°. Mean temperature, 34°. Frost occurred on nineteen days. During the year 1891 rain fell on 202 days, the total fall for the year being 28.35 inches, 20.37 inches of which fell during the last six months.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks*.

— HAVING read the interesting articles on PRUNING VINES I will, with the Editor's permission, give my experience on close pruning. I have seen this system practised year after year with most satisfactory results, in one instance the Vines (Black Hamburgs) were between thirty and forty years old, and always produced a good crop of useful sized bunches, with large, well-coloured berries. At the same time I do not believe in going to either extreme. Mr. Dunkin advises leaving the shoots (if necessary) 2 feet long with Vines planted the usual distance apart (3 or 3½ feet). There would not be sufficient space to train the laterals. To return to the close pruning I have always found that if the shoots are shortened after the fruit is cut to four or five leaves, there is not any difficulty in securing a good bud close to the spur. As a general rule I leave two prominent buds, from which I always get a good selection of medium-sized bunches. For large bunches it might be necessary to leave more, but I consider for home use, or even for exhibition purposes, medium-sized bunches, with large, well-coloured berries, are much better than large bunches, which are very often small in berry and deficient in colour.—H. S.

— THE WOLVERHAMPTON HORTICULTURAL SOCIETY.—The Exhibition of this Society for 1892 will take place on July 12th, 13th, and 14th, in the Public Park, and a very liberal schedule of prizes will shortly be issued. The following details of the past exhibitions may be of interest to many of your readers. In 1889 there were nine exhibitions open to all England, with twenty-six exhibits, and seven cottager exhibitions with forty-four exhibits. In 1890 there were fifteen exhibitions open to all England with sixty-seven exhibits, and twenty-five cottager exhibitions with 240 exhibits. In 1891 there were thirty-six exhibitions open to all England, with 133 exhibits, and thirty-three cottager exhibitions with 266 exhibits. In 1889 the profits were £569 5s., applied as follows:—For the erection of a greenhouse in the Park, £100; for a shelter in the Park, £69 5s.; deposited in a bank, £400. In 1890, profit on that year's exhibition, £594 5s. 7d., applied to:—For shelter in the Park, £88 15s. 7d.; deposited in the bank, £505 10s. In 1891, profit on that year's exhibition, £692 9s. 10d., applied to:—Fencing in the Park, £47 14s. 6d.; to the Park and Baths Fund, £50 5s. 4d.; deposited in bank, £600. The latter sum will be kept as a reserve fund, but the two other balances, amounting to £905 10s., form the nucleus of a fund for providing a winter garden, or such other object for the Park as may be agreed upon by the Committee and the Park and Baths Committee, to whom £100 per annum is paid for the use of the Park for three days for the Annual Horticultural Exhibition and Fête. It will thus be seen that, as at Shrewsbury and York, the institutions of the town are cared for, whilst affording the district an opportunity of seeing a high-class horticultural exhibition on an extensive scale. The Committee are guided to a very great extent by the ripe experience as an amateur cultivator and flower show manager, of Mr. W. A. Green, solicitor, Wolverhampton, and his son, Mr. W. A. Green, jun., is the efficient and courteous Hon. Secretary.

DOUBLE MIGNONETTE.

I SEND you a photograph of a plant which exhibits the curious form of median proliferation, which has of late years become rather common in Mignonette. Some of the flower spikes were 15 inches long by 6 inches at the base. The following is the history of the plant:—Four years ago I purchased a packet of what was described as white Mignonette. One of the plants raised from this seed outgrew the others, being very strong and floriferous, and extending to about 4 feet in diameter. It exhibited some tendency to proliferation, and did not ripen any seed. Two cuttings struck from it were cultivated in pots the following year, and produced abundance of seed. I raised a number of plants from this seed during the next two years, all of which developed the proliferation to the fullest extent. The photograph represents one of them. This proliferation interferes with the develop-

an ordinary stove containing heat, moisture, and light in plenty Coleuses can be propagated and grown quickly to almost any size and shape desired with the needful attention. But for table decoration large, closely pinched plants are not wanted, but bushy and free little specimens. To attain this end cuttings may be inserted in 3-inch pots, kept close until rooted, and then the leading point pinched out, which will cause side shoots to break, and if small plants are wanted they will need neither pinching nor potting further; but some may be shifted into pots a size or two larger, and these will furnish as large plants as will be required for tables. Coleuses enjoy any amount of sun, which favours intense colouring and promotes a short-jointed growth. Light and sandy soil produces good Coleuses, but they are not particular when all other conditions are present. Frequent propagation will always ensure a good stock of these plants, so if any are injured by use they may be thrown away.



FIG. 2.—DOUBLE MIGNONETTE.

ment of seed, so that in the two years I secured scarcely a dozen seeds; but the growth in all cases was very free, some of the plants attaining a diameter of between 4 and 5 feet. The prolific extension does not entirely prevent the formation of seed, as the capsule out of which the prolific growth proceeds sometimes contains one or two fully developed seeds.—E. TONKS.

TABLE PLANTS.

(Continued from page 556.)

COLEUSES.

BUSHY, well-coloured plants of Coleuses fill an important place as useful table plants during the summer and autumn. They are not much used in winter, because at that period they are more readily affected by changes of temperature, their use in hot dry atmospheres soon causing the leaves to fall. In the winter, too, they are not so brightly coloured. In the spring and summer in

ASPARAGUS.

In sharp and distinct contrast to Coleuses are the beautiful foliage plants *Asparagus plumosus nanus* and *Asparagus tenuissimus*. The first-named is the most graceful of the two, and merits the best attention for table decoration. It is valuable at all times of the year, and no stove plant combines such delicacy of foliage with such enduring qualities when used in rooms. It is far before the popular Maidenhair. Plants in 5-inch pots are perfect table gems when they fill the pots with roots and have assumed a dwarf and bushy habit of growth, which may be better secured by a little topping of the strongest growths. This variety is increased by division only, but *A. tenuissimus* can be propagated by cuttings easily from any mature portion of the plant, as well as by division of the rootstock in spring. Neat and pretty little plants of this variety can be cultivated for table decoration in quite small pots, 3-inch pots being suitable, and by a little topping they may be kept dwarf for a considerable time. The same process may also be adopted with larger plants in 5-inch pots, but still larger specimens

should have their growths trained round three or four light stakes inserted in the pot. Shade from strong sunshine. A fairly good soil composed of fibrous loam, peat, leaf soil, sand, and charcoal will grow them with the necessary attention to watering and a moist heat.

PANDANUS VEITCHI.

Pandanus Veitchi, though rather formal in growth, presents some good and useful points as a table plant. First of all, it may be grown in small pots; it is a clean bright-looking plant, and easy of cultivation. The roots are strong and wiry, and are numerous produced, soon completely filling the pots and overrunning the soil on the surface; while the leaves are long and arching, variegated with broad bands of green and creamy white, each edge of the leaf being sharply serrated. The most useful size for tables are plants in 5 and 6-inch pots. It does best in heat.

EULALIA JAPONICA.

Eulalia japonica fol. var. is a very useful plant because of its long green and white grass-like foliage. A plant with numerous stems, which spring direct from the roots, not too tall, but high enough to rise above other material, adds lightness and gracefulness to a whole arrangement of plants either on a table, in the stove, or among those of an exhibition group. Five-inch pots are convenient for most purposes. To increase this plant divide the roots in spring. Every small portion will grow under favourable conditions; but to make useful plants at once fairly large pieces should only be used. This grass does best, and makes the cleanest, brightest, and most satisfactory growth in a moderate stove temperature. It likes plenty of water when growing freely.

FERNS.

A great number of Ferns in a small state growing in ornamental pots about 2 and 3 inches in diameter, and larger specimens in proportionate sized pots, are much sought after, and used for table decoration. The stove kinds may be employed for temporary purposes, and one of the most frequently used, and perhaps the most frequently spoiled, as its fronds are very susceptible to untoward influences, is the favourite and popular Maidenhair (*Adiantum cuneatum*). Small bushy plants in 3-inch pots are very useful, but they soon feel the effects of heat and dryness. Those in 4, 5, and 6-inch pots are the most satisfactory, and with due care may often be used without much injury being sustained by them. Root-bound plants suffer the soonest, because the numerous roots round the inside of the pot feel the withdrawal of the moisture which takes place quickly through the porous pot—the ordinary red flower-pot I allude to. Young seedlings grown on and potted make the largest and most vigorous specimens, and this applies to many other kinds.

Blechnum brasiliense, a vigorous growing abundantly rooting Fern with conspicuous fronds, is fairly well adapted for table decoration when in a small state or in one recently developed from the seedling form, and in no less size pot than 4 inches. It is rather horizontal in its growth at this stage, but getting larger also the fronds assume a habit more erect. When first unfolding the young fronds always are upright for a time. They are also peculiar in the richness and freshness of their colour, which at this time is very pretty, being a combination of pink, brown, and light green. This Fern, when well rooted, absorbs a very considerable quantity of water, any lack of it soon causing flagging of the foliage. It is the same with other varieties of exotic *Blechnums*, all being strong-rooted and bold in growth. They enjoy best stove cultivation. The ordinary soil for other Ferns will also suit these.

Lomaria gibba, a greenhouse Fern, which when it attains to some age becomes a dwarf Tree Fern, is any time permissible as a table plant when the pot containing it is not unsightly or too large for the plant.

Nephrodium molle is an admirable Fern for a table. Well established in a pot it will stand a considerable amount of dry air without apparent injury. It is, therefore, specially adapted for using for longer periods. It is an evergreen Fern, requiring greenhouse cultivation. It does well in an ordinary soil of loam, leaf soil, and sand.

Pterises are probably the leading species of Ferns used for table decoration. The ordinary well-known *P. serrulata*, or Spider Fern, so called because of its long narrow pinnæ, is one of the most easily grown of all Ferns. It seeds readily, and germinates almost anywhere where a damp position affords a resting place for the spores. Hundreds of seedlings may be noticed in ferneries, greenhouses, and stoves growing with a rank luxuriance on the surface of the soil in pots, on damp stages, walls, and other places. These small plants when large enough to handle can easily be detached from their resting-places, or lifted from the soil for the purpose of

pricking out an inch apart in pots or pans of fine soil. Here, if kept moist without heavy waterings, they will soon root readily and grow apace, becoming in a short time ready for placing in small pots, or if kept in the pans a little longer, allowing them more room, they may be transferred to larger pots as desired. *Pteris serrulata cristata*, the crested form of the latter, makes an exceedingly bushy and effective table plant in either small or 5-inch pots. *Pteris serrulata major* is useful. It is a bolder growing variety, having larger fronds and broader pinnæ: 4½ and 5-inch pots are the best size to grow this variety in for table.—S.

(To be continued.)

OUTLINE OF THE HISTORY OF COMMERCIAL FERTILISERS.

1, THE history of fertilisers practically dates back to the time when bones were first applied to the soil and their value as a fertiliser was first recognised. Fertilising with bones was first practised in England. Probably the first instance of their extensive application was in the case of the farmers living near Sheffield, England, who applied to the land the bone and ivory clippings, which were waste products of the knife and button factories of Sheffield. These clippings amounted to about 800 tons a year, and were regarded, until about a century ago, as a nuisance, the disposal of which was a serious problem to the manufacturers. In 1774 the agricultural use of bones was first publicly recommended by Hunter, and successful experiments were made with bone dust. About 1814, Alexander von Humboldt called public attention to the use of guano as a fertiliser, which he had seen used by the natives of Peru. About 1817, the first superphosphate is believed to have been made by Sir James Murray.

It was not until after 1820 that the use of phosphates assumed any great commercial or agricultural importance, and not even then was it appreciated what gave bones their value as fertilisers. About 1830, Peruvian guano began to be imported into Europe as a fertiliser, and a few years after, into the United States, especially at the South.

About 1840, Liebig published the result of his researches, and suggested that plants must obtain materials for their growth from the soil as well as from the air and water, which alone were previously supposed to furnish plant food; and, hence, that the proper life of a plant can be benefited by furnishing those elements that are necessary. It was shown that the phosphate of lime in bones gave them their value, and that, by dissolving bones with sulphuric acid, they were made much more effective. The demand for bones then outran the supply. Other sources were looked for, and in 1843 a new source of phosphate of lime was found in Spain, consisting of a rock which contained considerable amounts of phosphoric acid. On trial this rock was found to be a substitute for bone.

In the United States, farmers first used bones about 1790. The first bone mill was built about 1830, and superphosphates were first used in 1851. The discovery of the so-called South Carolina rock was a great boon to those using commercial fertilisers, as this was found to take the place of bones.

The investigations based upon Liebig's theory showed that other elements in addition to phosphorus must be used to secure the best results, and, gradually, commercial fertilisers containing other elements came to be manufactured and offered for sale.

PRINCIPLES UNDERLYING THE USE OF FERTILISERS.

2, Until fifty years ago, agriculture was without a scientific working basis. To the investigations of the illustrious German chemist, Justus von Liebig, we largely owe the advances that have been made in agricultural methods during the last half century. The following four laws, which form the foundation of modern agricultural practice, were fully established by Liebig:—

(1), "A soil can be termed fertile only when it contains all the materials requisite for the nutrition of plants in the required quantity and in the proper form."

(2), "With every crop a portion of these ingredients is removed. A part of this portion is again added from the inexhaustible store of the atmosphere; another part, however, is lost for ever if not replaced by man."

(3), "The fertility of the soil remains unchanged if all the ingredients of a crop are given back to the land. Such a restitution is effected by manure."

(4), "The manure produced in the course of husbandry is not sufficient to maintain permanently the fertility of a farm; it lacks the constituents which are annually exported in the shape of grain, hay, milk, and live stock."

These four laws of Liebig contain a clear statement of the principles underlying the use of fertilisers; but to understand their meaning with satisfactory clearness we must know something more in detail about the following subjects:—

(a), The constituents and food materials of plants.

(b), The constituents of soils.

(c), The relations of soils and plants.

These subjects will now be considered in the above order:—

THE CONSTITUENTS AND FOOD MATERIALS OF PLANTS.

3, To chemical analysis we owe all that we know about what plants contain or are made of. Less than eighty years ago not a single vege-

table substance had been accurately analysed; and although in the thirty years following much was learned about the different elements contained in plants, it was not until after the investigations of Liebig that our knowledge of the chemistry of plants progressed with any satisfactory degree of rapidity.

CHEMICAL ELEMENTS.

4. All matter is composed of about seventy different chemical elements. A chemical element is any substance which cannot, by any known means, be separated into two or three different kinds of matter. For example, gold is an element, because in whatever manner it may be treated we cannot get anything out of it but gold; pure gold contains nothing but gold. So, nitrogen is an element, because, as far as we are able to find out, it contains only one thing, that is, nitrogen. Similarly, carbon, sulphur, potassium, oxygen, and iron are elements.

Just as the twenty-six letters of our alphabet are combined in various ways to form the words of a whole language, so these seventy elements or simple substances, constituting Nature's alphabet of matter, are capable of being united to produce all the different chemical compounds that go to make up the countless forms of matter. The number of different combinations possible between these seventy elements is practically infinite.

ELEMENTARY COMPOSITION OF PLANTS.

5. When we state what elements any substance contains, we give its elementary composition. For example, sugar contains the elements carbon, hydrogen, and oxygen; this is a statement of the elementary composition of sugar. So when we state what elements a plant contains we give its elementary composition or analysis. The term ultimate composition means the same as elementary composition. We will now consider the elementary composition of plants.

6. The exact number of different kinds of plants growing on the earth has never been definitely ascertained, but the number probably exceeds 200,000. Of this large number only a few have been subjected to careful chemical analysis, and yet so uniform in all its great variety are Nature's methods of working and building that we can quite safely say that, so far as the elementary composition of plants is concerned, little remains to be learned. Chemical analysis shows that of the seventy elements known to exist, only fourteen are essential to produce all the different forms of vegetable life.

While all plants contain certain chemical compounds, such as cellulose, albuminoids, &c., it may be that each plant contains, in some one or all of its parts, one or more chemical compounds peculiar to itself, so that there may be as many distinct chemical compounds in the vegetable kingdom as there are different species of plants. This, of course, cannot be known absolutely until all plants in existence have been carefully analysed; but whether the number of different chemical compounds in the vegetable kingdom be a few thousand or a few hundred thousand, we know that they are almost entirely made up of fourteen elements, and these, therefore, form the chemical alphabet of the vegetable kingdom, all the different vegetable compounds, like words from letters, being formed by the union of two or more of these elements.

The fourteen elements which are regarded as being necessary to the perfect growth and development of every plant are the following:—Carbon, hydrogen, nitrogen, oxygen, phosphorus, sulphur, chlorine, silicon, calcium, iron, magnesium, manganese, potassium, and sodium. The element fluorine is of frequent occurrence in very small quantities, and the following elements are of rare or doubtful occurrence:—Aluminium, barium, bromine, cobalt, copper, iodine, lead, lithium, nickel, rubidium, tin, titanium, and zinc, but their occurrence is a matter of curiosity rather than of practical importance, for, unlike the fourteen named above, they seem in no way to be necessary to plant life.

AIR-DERIVED AND SOIL-DERIVED ELEMENTS.

7. The elements that are necessary to the growth of plants may be divided into two quite distinct classes, which have important and marked differences. These two classes are:—1, Air-derived or organic elements. 2, Soil-derived or inorganic elements.

AIR-DERIVED ELEMENTS.

Carbon.
Hydrogen.
Oxygen.
Nitrogen.

SOIL-DERIVED ELEMENTS.

Phosphorus.
Sulphur.
Chlorine.
Silicon.
Calcium.
Iron.
Potassium.
Sodium.
Magnesium.
Manganese.

8. It is usual among writers on agricultural chemistry to call these classes organic and inorganic elements, but this use of these words is extremely inaccurate, for any element may be either organic or inorganic, according as it is or is not a part or product of an organised body. Oxygen, as it exists in the air, is inorganic matter; but when through vital processes it becomes part of an animal or plant, it is organic.

9. These two classes of elements differ in three important particulars, as follows:—

First.—The elements of the first class are derived exclusively from the air, either directly or indirectly; while those of the second class come exclusively from the soil.

Second.—Air-derived elements disappear, for the most part, in the form of gases, when a plant is burned; while the soil-derived elements, usually the smaller part, are left in the form of residue or ash, which further heating will not have any effect upon. Some carbon and oxygen and nitrogen are always found in the ash, while slight quantities of chlorine, sulphur and phosphorus are apt to be driven off by heating. The two classes of elements are, therefore, not so sharply defined in this regard as they are in respect to the sources from which they come.

Third.—These two classes differ very noticeably in regard to the quantities in which they are present in plants. Thus, the air-derived elements constitute at least 95 per cent. of the whole vegetable kingdom, while the soil-derived elements occur in small quantities, varying from a fraction of 1 per cent. up to 10 per cent., or even more in some cases. Because the soil-derived elements occur in so much smaller quantity, it does not follow that their presence is of less importance; in their absence, vegetation would disappear.

We will now consider each of these elements in order, and mention briefly some of the more important characteristics of each; but, before doing this, it is desired to explain the meaning of two or three chemical terms which we shall have occasion to use.—(*Bulletin of the New York Agricultural Experimental Station.*)

(To be continued.)

BASING PARK GARDENS.

BASING PARK, the seat of W. Nicholson, Esq., late M.P. for Petersfield, is situated almost in the centre of a triangle, the point of each angle being Petersfield, Ropley, and Alton. For visitors Petersfield or Ropley is most convenient; preference should be given, however, to the former, as the road and scenery by that route are very good and picturesque; dells and banks in repeated succession are passed, and at various points along the Petersfield hills splendid views of forty or fifty miles of country are obtained. The lodge is reached after four miles drive, and looking towards the mansion the serpentine drive stretches for three miles. The first mile is on the incline with the church at the top; the drive is belted on both sides with Spruce and Larch, leaving a margin of 10 or 15 yards of grass, which is kept mown, upon which there is a fine *Araucaria imbricata* at every 10 yards. The church is an ornament to the landscape for miles around, and was built by Mr. Nicholson at the cost of some £20,000. Continuing our journey along the drive, which now slopes the other way, and is straight for a mile, the whole length is taken in at a glance. There is plenty to interest one, every *Araucaria* being a study in itself. The female trees are crammed with cones, and some measure 40 feet with a 6 foot trunk, the males 45 feet high, and trunk 9 feet.

The gardener's house is a villa standing in its own pleasure grounds, and its occupier is one of the best gardeners of the day, not as an exhibitor, for he receives a set off to this, but as a practical gardener in every branch. Having known Mr. Smythe the greater part of the nineteen years he served the Earl of Soudley, Elmham Hall—which place he made noted by his fine specimen Heaths, Orchids, and fine-foliage plants and fruit culture in its best form—I can speak from experience of his ability. He has now been at Basing nearly sixteen years, and his success has been as great, or even greater, than in the former place.

The arboretum or American garden is some 7 acres in extent. It is a perfect maze, and only the initiated can find their way about it. A margin each side of the walks is grassed, with dotted shrubs; all the rest is planted with specimen trees, of which some of the best are *Taxodium distichum*, 55 feet high, trunk 13 feet in girth; *Picea Nordmanniana*, 50 feet high, the trunk 8 feet in girth; *Cedar Deodora*, 55 feet high; *Abies Menziesii*, 65 feet high, trunk 9 feet 6 inches in girth; *Abies Douglasii*, 70 feet high, the trunk 11 feet 6 inches in girth.

Crossing the drive over a rustic bridge we pass on to the glass houses, two ranges of six houses running parallel to the bothies. They are filled with Pines, Orchids, and foliage plants, some of the *Cypripediums* being excellent specimens. A north greenhouse is filled with *Justicias* and cool Orchids. Passing through a range of back offices (130 yards long, including the best potting shed I have ever seen) into the vinerics, six in number, with an early Peach house; this range is nearly 100 yards long. Nos. 1 and 2 were divested of their crops; No. 3 had some fine bunches of Muscat of Alexandria; No. 4 was full of young Vines, heavily cropped with well hammered berries and a beautiful colour; No. 5 contains Alicante and Gros Colman, each Vine bearing as many as fifteen to twenty-five bunches, every one fit for the exhibition table at the best shows.

On the outside of the west wall of the kitchen garden there are four more ranges of houses, comprising flowering houses, Orchids, and fine foliage-plants and Pine stoves. The Pines show good cultivation, Orchids grow like weeds, amongst which are several seedlings. The interesting decorative stove plants would supply the material for a long article. In the kitchen garden, the centre walk, the whole length is covered with Pear trees grown on an arched trellis; the other centre cross walk, the borders of which are filled with choice herbaceous plants. Nothing but interesting plants are grown in this garden, the extensive vegetable garden being across the park. The orchard house, which is over 100 yards long and 14 feet wide, the front trellis rises from the base of the front wall and bends over within 2 feet of the ground. Pyramidal Pear trees some 6 or 7 feet high are planted on the front side of the walk about 8 feet apart; the back wall is covered with Figs, Peaches, and Cherries, as is the front

trellis. The worst seasons come and go without affecting the desert supply.

From the main terrace, which is beautified by classic vases and steps, the lawns slope to the south, finishing at the south-west and in front of a sunk geometrical flower garden, with a fountain in the centre. Here carpet bedding is well displayed, the whole garden being banked by magnificent Rhododendrons. Some fine specimen foliage and flowering trees and shrubs stud the lawn singly and in clumps. Another geometrical flower garden lies to the east of the mansion, all being beautiful with its fountain, carpet bedding and mixed beds. An extensive shrubbery behind this has been much improved. Here are some of the finest specimens of Conifers, amongst them being a Wellingtonia 66 feet high with a trunk 18 feet in girth. I think this can claim to be the king of the Wellingtonias in England. Close by this is a Cryptomeria japonica, and almost as high, with a fine trunk, a perfect specimen from the ground, notwithstanding having 15 feet blown off some ten years ago.

About the conservatory and corridor a chapter could be written. It is extended from the east end of the mansion, having a mosaic floor, Tree Ferns and creepers, permanent plants, and a splendid bank of Camellias some 15 feet high, and about 50 feet all along the back. These were moved here from the old conservatory twelve years since. They are furnished from top to bottom. As a proof of its size it is almost a week's work to re-arrange this with flowering plants. Some ten years ago, when writing in the Journal on the cultivation of the Poinsettia, I stated in this conservatory summer reigns supreme all the year round. That is still my conviction. The north front has a large expanse of lawn, the carriage drives curving to the east and west.

The water supply cannot be overlooked. Various force pumps are fixed up for watering and syringing various trees and shrubs from any of the numerous stand pipes. The pumps are fixed in cesspools from the mansion and farm, and some in spring water. By a simple arrangement two or three pumps can be set at work, so that a solution can be obtained from the various cesspools and fresh water together, diluted so that it can be made of any strength—clear, medium, or strong all over the garden. What a saving of labour and slushing about on the paths by the usual water barrow. Equally good are the arrangements for warming the houses and offices.

The well timbered and extensive park is seen from most points of the pleasure ground. To the north-west side lies the home farm. The buildings are very extensive, and were erected at a cost of £7000. The walls in several places are hung with the prizes taken for beasts at the several shows. Very appropriate mottoes are hung in the passages; amongst them I noticed "Waste not, want not," "Cleanliness is next to godliness." Properly equipped carpenters' shops, smithies, and corn mills, through which run spindles for all sorts of machinery worked by a large windmill fixed on the building, and in fine weather by steam. Mr. and Mrs. Nicholson take great interest in their estate and work-people and the villages around, and recently they have erected a large village meeting house and reading room.

A new Tacsonia, a cross between two Tacsonias that are growing in the conservatory, is growing outside on a south wall, and has flowered most freely. It is a decided improvement on any other Tacsonia in the colour and beauty of the bloom, and its grand point is its hardiness and free flowering outside.—G. A. BISHOP, *Wightwick Manor Gardens, Wolverhampton.*

LEPACHYS COLUMNARIS.

THERE are few more interesting studies connected with wild flowers than the geography of plants. Plants are essentially travellers. Not even the most steadily disposed remains perpetually in one place. The bulb produces a bulblet at its side, beneath or above it, and then dies, leaving vacant the spot which it occupied. Sometimes the plant travels faster by off-sets or runners, and is still wider distributed by buds or seeds. It is only a question of time for the slowest plants to advance to immense distances, and we may reasonably conclude that no species of plant has been always in the location where we now find it. There is, of course, a retrogression as well as an advance, and the same ground may have been occupied and re-occupied a number of times. It is just possible that a species abundant in any one location may always have been there from its first appearance on the earth, but bearing in mind the known essential character of a plant to travel, we may reasonably believe the probabilities to be against that conclusion, and hence the effort to trace the plant to its original home is clothed with peculiar interest. There are many agencies by which plants travel, independently of those which are parts of their own natures. Animals carry both the plants themselves and their seeds, and the winds and waters are ever at work on the task of distribution. Rivers especially have a very important part, and the plant-geographer generally finds the range of a species much greater in the line of a stream than in lateral directions. As to where any one species first made its appearance, nothing has yet been discovered. There is reason to believe that they did not appear simultaneously, some are certainly more recent than others; but though new species are continually being discovered, no one has yet been found that could be pronounced a modern creation in the sense the average mind would understand by modern times. But though this field of study seems hopelessly impenetrable, the earnest student is often furnished with glimpses of the interior, and which keep him in hopes of a better reward some day.

Our present plant, *Lepachys columnaris*, is one of those welcome aids in these interesting researches. It was first discovered by Bradbury or

Nuttall, most probably the former, in the lower portion of what was once the great Missouri Territory, and which embraced at one time nearly all the land we now possess between the Mississippi and the Rocky Mountains; but since that time it has been found by almost every Government expedition along the lines of most of the streams examined. Thus one reports it as found on "the Upper Canadian;" another, "prairies along the Canadian;" another, in the "Upper Arkansas," and as we proceed along almost every river that runs into the Missouri up to its very source the *Lepachys* is found. And it exists on the high prairie ridge which divides the waters of the south from those flowing north, and the plant follows the Saskatchewan in its north-east course towards Hudson's Bay. A plant which had its ancient home in a warm climate would be able to resist but very little cold, and its northward travels be limited by the winter temperature. It is therefore probable that the *Lepachys* sprang first into life in the Upper Missouri region, and then spread north and south through the river agencies chiefly, and, once established in new localities, spread east and west, meeting each colony from side to side.

We may now say a few words on its botanical history. As already noted, the seeds were probably collected by Bradbury, who supplied Mr. Nuttall with many seeds and plants of his collecting beyond the Missouri, and the seeds were given by Mr. Nuttall to Mr. Frazer, an English nurseryman, who flowered it in England about 1813. Pursh, in his "Flora of North America," issued in 1814, refers to it, probably having seen the plant at Frazer's, as he was then in England preparing his work. It was however at this time known as a *Rudbeckia*, and it is described in Nuttall's "Genera of North American Plants" as *Rudbeckia columnaris*. In 1819 Rafinesque, who with many eccentricities, had a wonderful power of discrimination, made several new genera out of the old one of *Rudbeckia*, and in a French magazine, the *Journal of Physic*, described two of them, one *Rutibida* and *Lepachys*. Botanists who succeeded him did not recognise his distinctions, and we find in many authors who succeeded him *Lepachys* and *Rutibida* given as synonyms. Torrey and Gray seem to have been the first to recognise the validity of the genus *Lepachys*, and it is now generally accepted. Our plant was in Rafinesque's genus *Rutibida*, which is not regarded as distinct from *Lepachys*, and was *Rutibida sulcata*.

The name *Lepachys* is derived from the Greek, *lepis*, a scale, and *stachys*, thick, according to Dr. Asa Gray, which the thickened apex of the chaffy scale of the receptacle may be regarded as appropriate. Many of the genera allied to *Rudbeckia* have, however, hard and peculiar chaffy scales, and the variations in these scales are taken into material consideration in analysing the generic relations of this group of Compositae. In this genus the scale almost encloses the flower in its younger condition. Almost all composite plants have their little flowers or florets, very beautiful in form when seen somewhat magnified; but this one, though rather heavy in appearance, is by no means unworthy of admiration by the art critic.

The plant varies remarkably in some localities, so much so, in fact, that before the lines of variation in this species were known, some of these forms were thought to be good species, and have had distinct names. Sometimes the receptacle with the disc flowers, which in the illustration herewith is long and slender, is short and almost globose. In others the ray florets are much shortened and are of a much darker colour. Indeed, in some cases the flower reminds one of the common French Marigold of gardens, and, once thought to be a species, was named *Lepachys Tagetes*, in accordance with the resemblance.

Torrey and Gray say the disc has the odour of anise when bruised, and the bruised leaves have in some slight degree the same character. But the plant is not known to have any use in the arts. As a hardy perennial border flower, it is, however, very welcome. It has the excellent character of taking care of itself, though with little encouragement from the florist; and when once it commences to bloom in July, it continues through the whole summer season.—(*Meehan's Monthly*.)



FRUIT FORCING.

PINES.—When it is found necessary to bring together any plants for the purpose of inducing them to come into fruit sooner than they otherwise would a light house or pit should be provided, where they can have the benefit of more heat. This being done some must be selected from the successional plants, choosing those which appear likely to show fruits quickly, which are readily distinguished by an examination of the centre or hearts of the plants, those likely to throw fruit having high centres, and are quite stout at the upper part of the plant stem. Let these plants be plunged in a bed which should stand constantly at a temperature of 90° to 95° at the base of the pots. If the plants are in the least dry water them copiously with liquid manure at the same temperature as the bed. Maintain the top heat at 65° to 70° at night, with 5° more from fire heat by day, and 10° to 15° more from sun heat. Keep the atmosphere about the plants in a genial and invigorating

condition by damping available surfaces as they become dry, and syringing as may be necessary.

FIGS.—Early Forced Trees in Pots.—The terminal buds having started advantage should be taken of the mild weather that may prevail for increasing the mean temperature of the house, as when Figs are fairly started into growth they delight in a good heat, plenty of moisture, and all the light that can possibly be given to them; the glass therefore must be kept clean, and air admitted so as to prevent the glass being continually covered with moisture, but seek increase of temperature from fire heat combined with sun heat in preference to maintaining a temperature in dull weather, and especially at night, that will cause any great advance in growth at those times. Maintain a night temperature of 55° to 60°, ventilate a little at 70°, losing no opportunity of admitting a little air when the morning promises an increase from gleams of sun, and close sufficiently early for the temperature to run up to 80°. Syringe the trees and walls twice a day on fine days, but when the weather is dark and wet omit the afternoon syringing and damp the floors in the evening instead, as the trees are weakened and the foliage made soft by keeping them wet during the night, therefore always allow the trees to become fairly dry before nightfall. Be careful not to allow the heat about the pots to exceed 70° to 75°, and if the materials are heating too violently turn them as a means of reducing the bottom heat, but it ought to be kept steady.

Early House of Planted-out Trees.—This is an excellent means of securing the finest Figs early in June, the trees being confined to borders about one-third the width of the trellis, and the soil a calcareous loam on a stratum of limestone or sandstone, so as to insure perfect drainage with superfluous water carried off by a drain. Maintain a night temperature of 50°, 55° by day, and 60° to 65° from sun heat. If conveniently arranged for the introduction of a good body of fermenting materials, as leaves and one-third of stable litter, the atmosphere will be kept uniformly moist and genial, lessening the need of fire heat. Trees that have been started about the same time for a number of years push growths with little excitement; but young trees that have not been forced start tardily, and are often given more heat in the early stages than is good for the crop. This should be avoided by bringing the trees on slowly, seeking advancement by sun heat more than from artificial in dull weather. Apply water to the border not less warm than the mean of the house, bringing the soil into a thoroughly moist condition. Syringe twice a day with tepid water, a little warmer than the house; but in dull weather damp available surfaces only, syringing always sufficiently early to allow the trees to become dry or nearly so before nightfall.

Succession Houses.—Proceed with pruning as convenient, thinning the wood where crowded, cutting back that which has reached the extremity of the trellis to growths well disposed for supplanting the branches cut away in bearing. Thoroughly cleanse the house, limewash the walls, water the trees with warm soapy water, using a brush, and the trees having been infested with scale use soft-soap solution, 4 ozs. to a gallon of water, and add a wineglassful of petroleum to every gallon, keeping it well mixed by constant stirring whilst being applied. It is necessary to dislodge the scale, effecting that by using a half-worn painter's sash tool thoroughly cleansed from paint. Remove the loose surface soil or mulching, and supply fresh lumpy loam with a sprinkling of steamed bone meal. Keep the house as cool and dry as possible, merely excluding frost, or not allowing the temperature to fall many degrees below freezing point.

Young Trees in Pots.—If these are wanted for early work another season the plants should be placed in gentle heat during this month, in order that they may make and properly ripen their growths by September. They must be potted without delay, using good rather strong turfy loam, with a fourth of old mortar rubbish and a fifth of thoroughly decayed cow manure, draining efficiently, and potting firmly. Train the plants with a single stem, and allow the radiating branches to form the foundation of a good bush or pyramid. Insert cuttings or eyes of any varieties it is desired to increase, and in order to make a good growth they should be encouraged with bottom heat, and started not later than the beginning of February.

CHERRY HOUSE.—When the trees started in December are fairly growing let the day temperature be kept at 50° to 55°, and if the days are bright air should be admitted, but only to the extent of keeping it from rising above 65°, keeping it from sun heat at 60° to 65°, admitting a little air at 50°, more at 55°, above which a free circulation of air must be allowed, and when the temperature declines to 55° close the house for the day. The night temperature should still be kept at 40° to 45° artificially. Syringe the trees in the morning and early afternoon if the weather is bright, but if the weather be dull it will suffice if the borders and other surfaces are damped whenever they become dry. Examine the borders, supply water if necessary, moistening them thoroughly, the water not being less in temperature than that of the house. Pot trees must be well supplied with water, repeating the supplies as necessary to insure thorough moisture in the soil.

CUCUMBERS.—Take care to husband the sun heat, giving a little ventilation if the weather be mild in the early part of the day, and close early in the afternoon, or shortly after midday, damping the house at the same time. Damp the floors on fine mornings, and syringe the plants lightly overhead, which discourages red spider, and to some extent holds the pest in check. Weak liquid manure should be given to plants in free growth, but should the plants not show signs of growing freely sprinkle a little superphosphate on the soil and use tepid water

only until the growth becomes free. To encourage surface roots a top-dressing should be given of turfy loam, from the size of a nut to an egg, intermixed with a fourth of horse droppings, having it previously warmed to the temperature of the house. Maintain the night temperature at 65°, a few degrees less in severe and a few degrees more in mild weather, 70° to 75° by day, and 85° to 90° with sun beat, keeping the bottom heat steady at 80°.

Plants for the early supply of fruit where winter Cucumbers are not grown should now be prepared, sowing the seeds singly in 3-inch pots half filled with soil, so as to leave space for top-dressing when required, plunging the pots in a brisk bottom heat near the glass. These plants will be available for planting in houses, pits, or frames. Where convenience for raising the plants for planting in frames does not exist seed should be sown in pots placed in a hotbed as advised below. All points considered there is no better variety than a select stock of Rollinson's Telegraph.

MELONS.—To have ripe fruit late in April or early in May the seed must now be sown. Sow the seeds singly in 3-inch pots, leaving room in the pots for top-dressing, and plunge them in a bottom heat of 80° to 90° near the glass. As soon as the plants have unfolded the first leaves top-dress the soil, keeping them as near the glass as possible without touching so as to prevent a weakly growth.

Hotbeds.—These are very important in some establishments where there is not light well heated structures for raising Cucumber and Melon plants, also forwarding other plants from seed and for striking cuttings. The fermenting materials may consist of two parts Oak or Beech leaves to one of stable litter well mixed and thrown into a heap, damping if necessary, and turning over twice, the first time when the materials are warmed through, and again in the course of a week. This sweetens the material, rendering it fit for making up. The most suitable site for a hotbed is a dry one, and in front of a wall or hedge to the north, so as to break the force of the winds from that quarter, and it is well if there be similar protection as that of a hedge to the east and west. The site should be dry, or it should be made so by a layer of faggots. The bed should be 6 inches larger than the frame every way, but as it is difficult to carry the sides and ends up quite perpendicular let the base be 1 foot greater than frame every way, building up the bed so that it will have about 6 inches of space to spare all round the frame. In making the bed put the materials as evenly together as practicable, and beat them down as the work proceeds. The bed should be about one-third higher than the intended height to allow for settling, and this will need to be at this season about 6 feet high at the back and 5 feet in front. In a week the bed will have settled down, then level the surface of the bed, return the frame, and put in sufficient fermenting material to make the depth at the back of the frame correspond with the front, and over this 4 to 6 inches of sawdust or similar material for plunging the pots in, or pots of cuttings. It is well to have the frame with a cavity inside, which may be made by nailing some laths 1 inch wide inside vertical to the frame, and 6 inches less than its depth, nailing some half-inch boards to these so as to form the cavity. This will allow the plants having the benefit of top heat from the linings after that from the bed is declining. Due preparation must be made of fermenting material for linings and hotbeds for the plants as they become fit for planting in the fruiting beds.

THE BEE-KEEPER.

PUNIC BEES.

As there appears to be a diversity of opinions with respect to the superiority or otherwise of the Punic bee, perhaps the following may be of interest to some of your bee-keeping readers, and more particularly to "A Hallamshire Bee-keeper" and "Lanarkshire Bee-keeper," whose careful investigations in search of truth we are bound to respect and admire.

Last spring I began the season with a Carr-Stewarton and several straw hives tenanted by the ordinary black bee, I was going to say; but we have imported so many different kinds of bees during the last twenty or twenty-five years, and our original black bee has become so crossed and re-crossed, that it would probably be a difficult matter to find the pure black bee in these degenerate days. I will, therefore, say the ordinary honey bee.

My Carr-Stewarton sent off a swarm about the middle of June, which swarm was united to a weak stock in a straw hive. A fortnight afterwards a second swarm was led off which was returned to the parent hive, and next morning several dead princesses were thrown out in front of the hive. Three days were allowed to elapse when the young queen was searched for and removed, and

the hive was then left undisturbed for several days, the bees becoming very excited after the removal of their queen.

On the 5th of July a virgin queen, purchased from "A Hallamshire Bee-keeper," was introduced to the queenless stock in the Carr-Stewarton hive, in accordance with the Hallamshire law. The bees appeared to receive her with favour, at once recommenced work, and all went well, breeding going on merrily. On the 20th August the above-named hive, an ordinary bar-frame hive containing a prime swarm with several frames of comb, ready worked when the bees were put into it, and four straw hives were taken to the Heather, where they remained until October 20th.

When they had been at the Heather a month I visited them along with a friend. On our arrival we were surprised to find a cluster of the Punics as large as a man's head hung outside below the alighting board with a heavy train extending upwards on each side, joining another large cluster hanging on the front of the hive nearly covering it, and almost choking up the entrance, a sombre-looking mass, and presenting the appearance of every bee having come outside to bask in the sun which was very hot at the time. The thought instantly flashed across my mind that they had not taken to a super on the top. Off came the cover, and we gently raised the quilt at each corner where we found them busily at work in the sections, and they returned home, weighing hives, bees, and honey 66 lbs., exclusive of the cover, the hive consisting of two body boxes and a crate of sections. Had I not known that they were governed by a young queen I should have been afraid of their swarming. Six stocks of the common bee were standing by the sides of the above, not one of which exhibited the slightest signs of hanging out.

During the time they were on the moors the Carr-Stewarton gained 28 lbs., the bar-frame 17 lbs., and the straw hives 14 lbs., 12½ lbs., 10 lbs., and 10 lbs. respectively, and this in a season which "Lanarkshire Bee-keeper" has designated a bad one, and I think he was justified in doing so, and in a district more noted for its production of smoke and sulphur than its flow of honey.

"Ye enemies of the African Punic little negro, what answer have you to make to this? That they are not so pretty as the Ligurians, the Cyprians, and several other varieties and their hybrids must be admitted; but they appear to be more prolific, hardier, better honey gatherers, and last, but not least, take to work in the supers more readily than any of the above-mentioned, and I hope to give them a further trial another season. Had they been brought home a month earlier each hive would have returned from 4 lbs. to 7 lbs. heavier than it did.

Perhaps I ought to say that I have kept the Ligurian, the Ligurian hybrid, and other hybrids, but I like the Punic hybrid the best I have yet tried.—WM. CARLTON.

TRADE CATALOGUES RECEIVED.

J. R. Pearson & Sons, Nottingham.—*Catalogue of Chrysanthemums, 1892.*

J. Forbes, Hawick.—*Catalogue of Vegetable and Flower Seeds, 1892.*

Ireland & Thomson, 81, Princes Street, Edinburgh.—*Catalogue of Garden Seeds, 1892.*

W. Wells, Earlswood.—*List of Chrysanthemums.*

Norman Davis, Lilford Road Nurseries, Camberwell.—*Catalogue of Choice New and Old Chrysanthemums.*

Wm. Paul & Son, Waltham Cross.—*Catalogue of Seeds, 1892.*

Robert Veitch & Son, Exeter.—*Catalogue of Seeds, 1892.*

T. Laxton, Bedford.—*List of Laxton's Seeds for 1892.*

W. B. Hartland, 24, Patrick Street, Cork.—*Year Book of Seeds for 1892.*

J. R. Pearson & Sons, Chilwell, Nottingham.—*List of Garden Seeds for 1892.*

Robert Sydenham, Tenby Street, Birmingham.—*List of Vegetable and Flower Seeds, 1892.*

G. Bunyard & Co., Maidstone.—*Catalogue of Home-grown Vegetable and Flower Seeds, 1892.*

Dobie & Mason, 22, Oak Street, Manchester.—*List of Reliable Seeds for the Garden and Farm, 1892.*

Charles Turner, Slough.—*Catalogue of Kitchen, Flower Garden, and Farm Seeds, 1892.*



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Gardening Appointments (C. F.).—No charge is made for such announcements. We are always glad to publish reliable information concerning gardening appointments.

Fruit Culture (C. C.).—We are obliged to you for the reference, and will, as you suggest, look over the article and your letter again. We have not preserved one of the papers you mention, and the other, the local one, we have not seen.

Late Peach (F. S.).—For a late Peach house facing west Sea Eagle is found by an experienced grower the best variety for market purposes. The Nectarine Peach is not far behind. Princess of Wales, Gladstone, and Thames Bank stand next to these. The latter variety is a good late Peach, but being yellow fleshed it does not take in the market like the white-fleshed varieties.

Shrubs for Working on Pear Stocks (D. D.).—These answer for most varieties of ornamental Thorns, including *Crataegus Pyracantha*, and are used for Quince, and others of the genus *Cydonia*, as well as for some of the species of *Pyrus*; but as a rule they are only makeshifts, and undesirable from many points of view, the plants growing too freely, whilst many are short-lived, and the practice is not commendable.

Small Mushrooms (May).—The bed could not possibly be in suitable condition for growing good crops of fine Mushrooms with the manure so wet. It is a wonder you did not dry it in preparation, or at least mix some dry material in it for absorbing some of the moisture. It seems, however, the mycelium has spread to some extent, and perhaps by waiting you may have finer produce. We should neither increase the temperature nor syringe the bed, but prevent the surface becoming too dry by a covering of litter, damping this if found necessary or desirable for the object in view.

Late Gladioli (Highstead).—We have not grown the particular variety you name, but on many occasions have carefully taken up plants that were showing their spikes in October, potted, and watered them well, the result being fine spikes of flowers in the conservatory during December, and the corms ripened much better than they would have done if left in the ground. You may carry out your proposal, but we should dry and rest the corms for two or three weeks before potting. Anything like brisk forcing must be avoided, and a very light position is imperative after growth commences, the pots until then being buried in cocoa-nut fibre refuse in a greenhouse.

Introduction of *Primula sinensis* (H. S.).—We presume you allude to the above plant, of which so many forms adorn our greenhouses and conservatories in winter. As its specific name implies it is a native of China. Mr. John Reeves, who died at Clapham in 1856, first directed attention to this plant. He was a tea-taster to the East India Company, and resided in China for many years. In 1821 the Chinese *Primula*, in consequence of his sending a drawing of it, was introduced by Captain R. Rowes; and presented by him to his relative, Mr. Carey Palmer, of Bromley, Kent. Mr. Reeves commenced sending plants from China in 1816, and besides sending twelve new *Chrysanthemums* in 1820 he sent the double Chinese Cherry, *Prunus serrulata*, and the Chinese Plum, *Prunus salicina*, to the Horticultural Society in 1820.

***Deutzia crenata flore-pleno* (M.).**—This is a very useful plant for forcing, but does not flower so early as *D. gracilis*. Pruning should be done immediately after flowering, and be limited to the removal of those portions that are exhausted by flowering, not necessarily removing the flowering branches entirely, as certain portions of these, which are easily observable, form spurs, which in turn produce clusters of flowers, but at the same time preserve and encourage the young growths. If one or two of these are very strong and likely to grow much longer than the rest pinch out their points while still young, and they will break and make second growths that will be strong enough for flowering. About a fortnight after flowering and pruning repot if needed, and let the plants have a very light position under glass until the weather permits their being placed in the open air, then plunge in an open sunny position,

watering them the same as you do Chrysanthemums. If you want very large bushes in the shortest time you may plant out the Deutzias and repot in the autumn; but plants so treated do not usually flower so freely as those kept in pots.

Fruit Trees for South-east by South Wall (F. J.).—Plums would succeed admirably, such as Green Gage, Jefferson's, Kirke's, and Coe's Golden Drop. The trees may safely be planted during mild weather up to the middle of February. The damp on the fruit in the fruit room after a frost is due to the moisture of the air condensing on the fruit through the latter being colder than the atmosphere; but when the fruit becomes as warm as the air the moisture disappears. Do not wipe the fruit, but admit a little air, which will dissipate the moisture, but avoid making the atmosphere very dry, as that would cause the fruit to shrivel.

Dahlias Showing "Eyes" in the Blooms (E. G. N.).—The chief cause of Dahlias having "eyes" is usually lack of that steady development of the plant so essential to the proper building up of the flower, and is best avoided by a proper preparation of the soil, not using freshly manured ground, but having it in good heart, deeply stirred and in good tilth. This will secure sturdy growth and well formed blooms provided the plants are given plenty of room and sturdy plants are put out in proper time. Wet seasons tend to encourage the production of "eyes," and too severe disbudding acts similarly by inducing grossness of plant, also weakly cuttings seldom throw good flowers. This should be avoided by selecting short-jointed cuttings. The tubers you have are more likely to give the proper sort of cuttings than any tubers you may purchase, and you may propagate from them with every confidence, only give the plants plenty of room, and keep the growths fairly thin.

Cropping Vines (A. A. B.).—We are glad to see that you turned the advice we gave to such profitable account. The samples of canes sent are excellent, the wood being strong enough, very firm, and containing little pith. For cropping over a series of years most gardeners would shorten the canes to about 3 feet, and take from each perhaps 2 lbs. or 3 lbs. of Grapes, a little more or less according to the character of the laterals; but most "market growers" would leave such canes twice the length or more, and cut twice the weight of Grapes from them next year, applying judiciously adequate support in the form of mulching, chemical top-dressings, and occasional applications of liquid manure. When a good length of cane is left, bending them in a horizontal position, or with the point below the horizontal line in spring, is often desirable to induce the lower buds to start freely. You will probably have read the account of the Ashford Vines on page 557 last week, and we shall, before very long, publish another example of successful Grape culture, and the methods that led to good results.

Artificial for Mixing with Sods for Cucumbers (J. B.).—There is no better material for mixing with poor "sods" than horse manure, using a fourth part, well incorporated, as humus is absolutely essential, and to give vigour to the plants you may use the following mixture:—Superphosphate two parts, nitrate of potash one part, sulphate of lime one part, all by weight, mix, and apply 1 lb. to each square yard of surface 1 foot deep, incorporating with the soil before planting, using as surface dressings afterwards as vigour is needed at the rate of 2 to 4 ozs. per square yard. Rhubarb revels in humus provided it is not waterlogged, and takes almost any amount of manure. It is also a potash plant, its stalks containing, as shown by their ash, 59.59 per cent., but like the Strawberry it can use soda as well as potash, for in some soils the stalks contain potash 14.47, and soda 31.77 per cent. These substances must not be lacking, but nitrogen is an all-important element, therefore Peruvian guano is an excellent dressing for Rhubarb at the rate of 2 or 3 ozs. per square yard, applying about the stools when the crowns are swelling, and before the leaves appear, repeating occasionally up to June. Nitrate of soda is a capital dressing on light soils, using 2 to 3 cwt. per acre when the crowns are swelling, just before they unfold, repeating it in May or early June, but not over the leaves.

Endive Culture (B. D. K.).—The best varieties for general use are Improved Round-leaved Batavian and Green-Curled Improved. It is hardly worth while sowing Endive before the middle of June for the first main crop, the principal crop—that is, that for winter use, needing to be sown early in July, and that for spring use at the end of that month. The seed may be sown in drills 15 inches apart and the plants thinned to 1 foot distance in the rows. This is the best for the early crops or those that have to be blanched on the ground, for which there is no better method than tying the head with matting or covering them with pots, closing the apertures so as to exclude light. The leaves should be gathered together and tied near the top, and in a week afterwards they should be again tied, this time about the middle, and the plants must be perfectly dry. About ten days in summer and three weeks in winter are necessary for blanching. The crops that are intended for lifting and placing in frames are best sown thinly in rich fine soil in shallow drills about 4 inches apart, sowing the seeds thinly, thinning to 3 inches apart, and when having four leaves take up carefully and plant in rows 15 inches apart and 1 foot asunder in the rows, watering as required. These lift with better roots than if not transplanted. The plants should be placed in frames or pits before being frosted, be well ventilated in favourable weather, and protected in severe weather so as to exclude frost. Blanching is effected in the same way as with those outdoors—namely, by tying up the leaves about three weeks before the heads are

required for use, tying up a quantity each week, by doing which a constant succession of blanched heads will be secured. Late crops may be planted at the foot of walls or in frames protected from frost, and are blanched in spring same as the early crops by tying, covering with pots, or placing a slate or tile over the curled varieties.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (W. C.)—If you read our conditions above you will perceive that the names and addresses of senders of fruit must accompany the specimens. If you send yours the fruits will be examined. (J. C.)—Baronne de Mello.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. S.)—1, *Cyperus alternifolius*; 2, *Grevillea robusta*; 3, *Araucaria excelsa*; 4, *Araucaria Bidwilli*; 5, *Geonoma gracilis*. (B. M. G.)—1, *Aralia Veitchi*; 2, *Fittonia argyroneura*; 3, *Dracena terminalis*. (T. T.)—1, *Platyloma rotundifolia*; 2, *Actinopteris radiata*; 3, *Hypolepis tenuifolia*; 4, *Todea intermedia*. (R. B.)—A leaf without flowers or description is insufficient for naming. (J. J. D.)—1, *Adiantum concinnum*; 2, *Cyperus alternifolius variegatus*; 3, *Justicia calycotricha*; 4, *Eranthemum pulchellum*; 5 and 6, insufficient.

COVENT GARDEN MARKET.—JANUARY 6TH.

BUSINESS very quiet with scarcely any alteration in prices.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, ½-sieve	1	0	to	4	0	Grapes, per lb.	0	6	to 2	6
Apples, Canada and Nova						Lemons, case	15	0	2	0
Scotia, per barrel	12	0	18	0		Oranges, per 100	4	0	9	0
Cobs, Kent, per 100 lbs. ..	30	0	35	0		St. Michael Pines, each ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	4	to	0	6	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0		Onions, bunch	0	3	0	5	
Carrots, bunch	0	4	0	0		Parsley, dozen bunches	2	0	3	0	
Cauliflowers, dozen	2	0	3	0		Parsnips, dozen	1	0	0	0	
Celery, bundle	1	0	1	3		Potatoes, per cwt.	2	0	3	0	
Coleworts, dozen bunches	2	0	4	0		Salsafy, bundle	1	0	1	6	
Cucumbers, dozen	4	0	9	0		Scorzouera, bundle	1	6	0	0	
Endive, dozen	1	3	1	6		Seakale, per basket	1	6	1	9	
Herbs, bunch	0	3	0	0		Shallots, per lb	0	3	0	0	
Leeks, bunch	0	2	0	0		Spinach, bushel	2	0	0	0	
Lettuce, score	0	9	1	0		Tomatoes, per lb.	0	4	0	6	
Mushrooms, punnet	1	6	2	0		Turnips, bunch	0	0	0	4	

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	5	0	to	8	0	Maidenhair Fern, dozen				
Azalea, dozen sprays	1	0	1	6	bunches	4	0	to	9	0
Bonvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6	3	0	
Carnations, 12 blooms ..	2	0	3	0	Mimosa or Acacia (French)					
Christmas Roses, dozen					per bunch	1	0	2	0	
blooms	1	0	1	6	Narciss (French) dozen					
Chrysanthemums, dozen					bunches	3	0	6	0	
blooms	0	9	3	0	Pelargoniums, 12 bunches	9	0	15	0	
Chrysanthemums, dozen					" scarlet, 12 bunches	6	0	9	0	
bunches	4	0	12	0	Poinsettia, dozen blooms..	4	0	9	0	
Cyclamen, dozen blooms ..	3	0	6	0	Primula (double) 12 sprays	0	6	1	0	
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0	
Euphorbia jacquiniæflora					" Red, per doz. blooms..	2	0	4	0	
dozen sprays	3	0	6	0	" Tea, white, dozen ..	1	0	3	0	
Epiphyllum, dozen blooms	0	6	0	9	" Yellow, dozen	3	0	6	0	
Freesia, dozen sprays ..	4	0	6	0	Tuberose, 12 blooms.. ..	1	0	1	6	
Gardenias, per dozen ..	4	0	8	0	Tulips, dozen blooms.. ..	1	0	2	0	
Hyacinths, dozen spikes ..	6	0	9	0	White Lilac (French) per					
Hyacinths (Roman) dozen					bunch	6	0	7	6	
sprays.. ..	0	6	1	0	Violet Parmo, French behs.	3	6	5	0	
Lilium longiflorum 12					" Czar	2	6	3	6	
blooms	6	0	9	0	" small bunches	3	0	6	0	
Lilium (var.) dozen blooms	2	0	4	0	" English, dozen					
Lily of the Valley 12 sprays	1	0	2	6	bunches	1	6	2	0	
Marguerites, 12 bunches ..	3	0	4	0						

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to 18	0
Azalea, per plant	2	6	3	6		Ficus elastica, each	1	6	7	0
Chrysanthemums, per doz.	4	0	9	0		Foliage plants, var., each..	2	0	10	0
" large, doz.	12	0	24	0		Hyacinths, per dozen	6	0	0	0
Cyclamen, per dozen	12	0	18	0		Lily of the Valley, per pot	2	0	2	6
Dracæna terminalis, dozen	14	0	42	0		Marguerite Daisy, dozen ..	6	0	12	0
" viridis, dozen	12	0	24	0		Myrtles, dozen	6	0	12	0
Epiphyllum, per pot	1	6	2	6		Palms, in var., each	2	6	21	0
Erica gracilis, per dozen ..	9	0	12	0		Pelargoniums, scarlet, doz.	4	0	6	0
" hyemalis, dozen	12	0	18	0		Poinsettias, per dozen	9	0	15	0
Euonymus var., dozen	6	0	18	0		Solanum, per dozen	9	0	12	0
Evergreens, in var., dozen	6	0	24	0		Tulips, dozen pots	7	0	9	0



SMALL HOLDINGS.

REGARDING the effort about to be made by the legislature for the extension of small holdings, from the sound point of view of benefit to agriculture, we must confess to having mingled feelings of curiosity and anxiety as to the line to be taken in such interference. A measure making it compulsory for landlords to let a given number of acres to all applicants would be a very doubtful blessing indeed, taken generally, for it is only under exceptional conditions that it could answer. The sub-division of large farms may, upon the surface, appear an easy matter, and we have repeatedly given expression to our convictions that the majority of farmers would be very much more prosperous if their holdings were so reduced in area as to bring them well within the means of the tenant. Of late years how frequently have we found applicants for vacant farms fail under the test of inquiry as to the possession of capital for such an undertaking. If landlords could afford to divide their large farms they would have done so long ago, but those whose incomes are derived solely from the land cannot now afford to erect the buildings requisite for a number of small holdings in place of the existing large ones. Where this can be done a payment of 5 per cent. upon the outlay is usually required in addition to a fair rent for the land.

That tenants would be forthcoming for holdings of from 20 to 40 acres we have no doubt, but in the interest of both landlord and tenant every applicant should be required to afford proof of the possession of at least £15 per acre of available capital. To undertake farming successfully there must be ample means to tide over a bad season or two, and also to take advantage of favourable opportunities for purchasing farm stock, or of a low market for corn and other feeding stuff. Many a pound is made by keen men of business at market in this way, and to say that a man cannot thrive in a small holding because of the low price of corn is mere nonsense.

Not often is it that a man with a small farm ought to sell any corn, his aim in growing corn at all should be for the home consumption not only of his live stock but also of his family. It is here that true economy first tells; with home-grown flour, fruit, vegetables, with butter, cheese, eggs, poultry, bacon, and pork also from the farm, household expenses are well kept down. Thrift and industry are of course implied; without them there can be nothing like success; with them, in combination with ordinary intelligence, it is entirely possible and by no means difficult of attainment. Perhaps the best incentive to exertion is the inevitable rent day, and it is this which makes us more hopeful of the future of the small tenant farmer, rather than of anything like a revival of the yeoman farmer, who, as a class, appear to have been entirely devoid of common prudence, indulging in a style of living beyond their means, having recourse to a mortgage to keep going awhile after they were practically bankrupt, till at length came a sale of the farm itself—often without realising enough to meet the claims of creditors. In this matter we are enabled to speak positively, as we have had to purchase several such farms as they came into the market, owing invariably to interest upon the mortgage not being forthcoming.

To the small tenant farmer we would say, Refrain from any attempt to imitate the practice of the large 100-acre men. Your aim must be small profits and quick returns. You cannot afford only one turn over from your land in a year; you must be keen after the "nimble ninepence," and so balance your affairs that

something is always coming on for sale. Cows, poultry, pigs, fruit, vegetables, green fodder must all be made to tell in turn. Do not cultivate crops with which big growers cram the market. You have no chance in competition with such men. If you grow Potatoes let them be early, before the market is glutted, and before loss from disease is possible; or, if you have a fruit plantation, let your trees and bushes be of sorts known to be prolific and very saleable. Keep no stock solely for the production of manure; rather—much rather—procure sufficient chemical manure from a reliable source to sustain the fertility of your land. We became recently acquainted with an instance in Surrey where small holders were actually paying 10s. per ton for farmyard manure. We told them plainly that it was not worth the money, and that they had far better combine and purchase some really good chemical manures. But they still retain the stupid prejudice against "artificial," which is of course fostered by those having costly "muck" to sell to them, and dear do they pay for it—so dear that we hope our advice may yet bear fruit.

WORK ON THE HOME FARM.

Our stock of Carrots is running low, and Mangolds will now come into use regularly for the cows and horses. For the cows only a moderate quantity will be used at first, as we object to sudden changes of diet, and the cows are always greedy after Mangold. All possible caution in feeding them is of the utmost importance now, in order to avoid imparting any taint to the milk and butter. The best meadow hay, bran, crushed Oats, with minced Carrots or Mangolds, and a little cattle Cabbage is a safe mixture, with pure fresh water. Avoid linseed cake and Turnips, and see that rack and manger are kept quite clean. With such a dictary, and a newly calved cow coming into milking at short intervals throughout winter, there should be no difficulty in keeping up the supply of really good butter.

The supply for the household now required from the home farm consists of milk, cream, butter, eggs, chickens, geese, turkeys, pigeons, fresh pork, hams, bacon, and flour for the household. For the carriage and hunting stables there should be ample supplies of hay, straw, Oats, bran, and roots. Prime joints of mutton should hang for a week or two according to the weather, and be delivered to the kitchen with a ticket attached to each joint bearing the date of killing upon it. Southdown mutton is usually preferred, and when the joints are well managed it is much liked. In large establishments it is customary also to supply a prime carcass of beef every fortnight. When this is done a special herd is kept for the purpose of some such breed as Devons, Sussex, Galloways, Red Polls, or Herefords, all of them excellent for beef, and coming early to maturity.

A wet harvest followed by a wet winter has rendered more caution than usual necessary in corn threshing. So much Wheat was carted in a soft condition that many a rick will be unfit for threshing till spring. Good flour cannot be had from soft Wheat, and there are certain to be some complaints of bad bread if it is sent to the kitchen. Fortunate will be the home farmer who has a store of old corn in hand, if not it is better to buy some than to run the risk of complaints, and to sell some later on when threshing becomes possible.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1891. December. 1892. January.		Barometer at 33°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	27	29.907	37.1	37.2	W.	34.2	43.2	36.9	52.4	29.9	0.121
Monday ..	28	29.864	38.1	38.0	W.	34.2	51.5	36.6	61.6	29.1	0.038
Tuesday ..	29	29.678	50.8	49.2	S.W.	35.3	52.1	38.9	68.1	32.8	0.035
Wednesday	30	29.725	47.1	46.7	E.	38.1	54.8	45.9	54.2	41.2	0.375
Thursday ..	31	29.510	51.2	51.1	S.W.	41.0	52.1	46.8	61.8	45.2	0.028
Friday ..	1	29.860	37.3	36.3	S.W.	40.8	43.0	36.2	53.8	30.7	—
Saturday ..	2	30.261	32.1	31.8	S.W.	39.1	42.8	29.2	61.8	22.5	—
		29.829	42.0	41.5		37.5	48.5	38.6	59.1	33.1	0.597

REMARKS.

27th.—Rain in small hours. Faint sunshine throughout the day.
28th.—Sunshine all day; cloudy evening, a little rain at night.
29th.—Damp early; frequent sunshine in the morning; cloudy afternoon; drizzle in evening and night.
30th.—Dull and drizzly early; continuous rain from 10 A.M. to 6 P.M., and dull and damp after.
31st.—Dull and showery early, gleams of sun at noon, heavy shower at 1.15 P.M., and almost unbroken sunshine after 2 P.M.
1st.—Bright sunshine almost throughout, but cloudy for about an hour at midday.
2nd.—Sunshine throughout.
Early part of week warm, and mean for the week above the average.
—G. J. SYMONS.



ONE of the most important duties performed by the Royal Horticultural Society through the medium of its various Committees is that of judging the numerous novelties raised in this country or introduced from others, and indicating by certificates or other awards the opinions of specialists as to their respective merits. This acts beneficially in two ways, first as a check upon those concerned in the introduction of novelties, inducing greater care in selection; secondly, it is a safeguard to purchasers, as these awards point out that some distinct characters are really possessed by the objects so honoured. There is no question that in the minds of all unprejudiced persons certificates possess a material value, and a careful examination of the awards of a series of consecutive years will afford abundant proof that the opinion is well founded. Committees, like other bodies of men, are liable to make mistakes occasionally, but there are so few in comparison with the work performed that no serious complaint can be founded upon them.

From time to time suggestions have been made with the object of improving the methods of working, and one innovation that has proved satisfactory in some ways is the recently adopted practice of recording the number of votes for and against a plant. It was claimed that when a novelty secured a certificate by a unanimous vote of the whole Committee, it presumably possessed considerably more value than one for which the voting was nearly equally divided, with perhaps the majority of only two or three, possibly of only one, in its favour. It is evidently desirable that this difference should be indicated, and the only method that seemed workable was recording the votes as stated. It is true some were in favour of the names of the respective voters being recorded as well, but this was objectionable in several ways, not the least being that much more time would be consumed if it were carried out on every occasion. I am not aware, however, if any member of a Committee particularly desired his name should be given as one who voted for or against an exhibit, that there is any rule to prevent it.

The latest suggested alteration in the system had an opposite tendency to that just mentioned—namely, it has been thought the objects of the Society would be better attained if the voting was by ballot, so that every man could express his opinion without even the suspicion of direct or indirect influence. The Council attached sufficient importance to this matter to submit the suggestion to the several Committees; but it was received with such strongly marked disfavour that it was at once dropped. It was rightly regarded as implying a suspicion that members were not sufficiently independent to openly record their judgment by a show of hands in the usual way. These matters are referred to here because in many provincial districts much interest is excited in the methods by which the Committees work, and those who have not the opportunity of attending the meetings are apt to form erroneous ideas on the subject.

Some notion of the importance of the work performed may be gleaned from a few statistics regarding the number of plants that have been distinguished by awards. A year or two ago I had occasion to investigate the matter, and I found that from the time when the Floral Committee was instituted in 1859, 6000 certificates had been awarded, being an average of about 200 a year.

Since then the total has been increased by nearly 700, so that we have a total that during the present year will be raised to nearly 7000. It would be safe to estimate that not more than one in ten of the novelties exhibited has been certificated, and this would represent the enormous total of between 60,000 and 70,000 plants passed under review in a little over thirty years. If it were necessary to adduce any evidence showing the need for the existence of such bodies this fact would alone suffice.

The National Chrysanthemum Society also has a Floral Committee, which generally meets upon the day following the R.H.S., and the result is, with regard to the plants, which are the special objects of the former Society's attention, that both Committees often award certificates for the same varieties, the greater number of new Chrysanthemums being, however, submitted to the N.C.S. These will be referred to in another article, as also will the awards at the Royal Botanic Society's Shows, which frequently include many novelties not shown or honoured at the Westminster meetings. As is generally known the certificates are there awarded by the Judges, and not by a specially appointed Committee.

In regard to the subject of certificates it is only necessary to refer to one other matter before proceeding to a review of the plants of the past year, and that is to draw attention to the two stages of awards, the "first-class certificates" and the "awards of merit," though for purposes of enumeration and comparison they are not separated in the following statistics, because the distinctions are in a measure of equal value according to the kind of plant. Thus, a superior seedling of a class of plants in ordinary cultivation may receive an award of merit, but a recently introduced species, a very distinct variety, or an artificially raised hybrid of merit, would probably secure a first-class certificate. This seems to be followed consistently by the Floral Committee, scarcely so by the Orchid Committee, as both certificates and awards are granted to undoubted hybrids, according to their respective merits, while the Fruit Committee make the two honours solely dependent upon quality.

During the year 1891 the R.H.S. Floral and Orchid Committees distinguished 285 plants by the two degrees of honours mentioned, of which 106 were florists' flowers as ordinarily understood, and seventy-eight were Orchids, the others being distributed amongst fine-foliage plants, including Ferns, hardy plants, and miscellaneous stove or greenhouse plants. The total number is a high one, much above the average, and Dahlias have been especial favourites apparently, for no less than thirty-three have been found worthy of awards.

As the largest number in any one family, however, the Orchids demand first attention, and the number given—seventy-eight—is convincing proof that these plants still maintain their position in the plant-loving world. About one-fourth of these are hybrids, raised in this country, and of which the parentage is known; the others are either distinct and superior varieties of previously known species or new introductions. No less than 198 of the total awards for all classes of plants were taken by members of the nursery or seed trade, the largest number of honours for any one firm being secured by Messrs. J. Veitch & Sons, Chelsea—namely, twenty-seven. Taking Orchids alone, however, Messrs. Sander & Co., St. Albans, head the list with twenty awards.

It is not my intention here to review the whole of the Orchids shown, but some of the more remarkable may be noted, and if it were asked which two of the year are the most interesting, those for which the Royal Horticultural Society awarded medals in June last would naturally occur to the minds of all familiar with the proceedings of the year. The Committees have the power to recommend medals for individual plants and novelties of decided merit, but they too rarely take advantage of this, and the medals as a rule are adjudged to groups which only amateurs with large collections or nurserymen can supply. Amateurs or

gardeners who may be very successful in the culture of some plants seldom procure anything beyond a cultural commendation or a vote of thanks. I have heard many complaints on this ground, and there is some reason for them. A good example was therefore set by the Council when they decided to offer two medals for the best new Orchids not in commerce, and it is desirable that this should be followed in other classes of plants.

The two selected for the honours named were both hybrids, namely, *Lælia hybrida* Arnoldiana from Messrs. Sander & Co., and *Disa Veitchi* from Messrs. J. Veitch & Sons, and in addition to the medals each exhibitor secured a first-class certificate. The *Lælia* was the result of a cross between *Lælia purpurata* and a variety of *Cattleya labiata*, but it was not stated to which type this belonged. From the same species hybrids have been obtained in *Lælia bella* and *L. callistoglossa*, but the variations in both the parents are so great, especially in the *Cattleya*, that by selecting the extreme forms it might be possible to obtain as distinct crosses as between other allied species. The plant shown was ten years old, the seed having been sown in 1881; it was vigorous in habit with narrow pseudo-bulbs 6 to 8 inches long, and leaves 12 inches long by $2\frac{1}{2}$ inches across, stout and bright showy green. The flowers were large and distinguished by a particularly graceful contour and pose, the sepals and petals suffused with rosy purple, the lip intense magenta crimson with darker veins, and a golden bronze tint at the base and in the throat. All the experts who saw this fine hybrid were unanimous in according it a place amongst the best yet raised.

The *Disa* as a hybrid possessed even more interest, and in its way was not less beautiful, though necessarily less showy. It was the first hybrid in the genus that has flowered, and having been derived from a cross between *D. grandiflora* and *D. racemosa*, something of an unusual character was fairly expected. The result equalled the anticipations, for while the habit, style of flowering, and colour of *D. racemosa* had been to a great extent fixed, the flowers had acquired a large share of the size and shape of *D. grandiflora*. The two lower divisions of the flower are of a rich rosy tint, while the upper one is paler, or nearly white, the lip being spotted with crimson. When this becomes sufficiently abundant it will be an excellent companion for the handsome old *Disa* so well cultivated in some gardens.

To name the next Orchid of the year in order of merit that would be in accordance with the taste of all would be a difficult task, but my own opinion is strongly in favour of the *Cypripedium insigne* var. *Sanderæ*, exhibited by Baron Schröder on November 10th, and then awarded a first-class certificate. If I had been in any degree uncertain about the merit of this variety, all doubts were effectually removed when towards the end of that month I had the satisfaction to see a plant in flower in Mr. Norman C. Cookson's wonderful collection of seedlings at Wylam-on-Tyne. This is one of the most delicately beautiful Orchids known to me, and it is doubtful if any member of the family recently introduced or raised will ever attain the popularity there is every reason to suppose this will acquire in years to come. It seems to be looking a long way ahead to predict popularity for a plant which has been sold and resold at £250, but it evidently possesses all the free-growing characters of the more familiar type, and though an age will be required to render the variety as abundant as that, it may be safely asserted no time will be lost in increasing the stock. It is an introduced variety, and it would be a pleasant surprise for some collector to discover a snug little colony of a few scores of plants, though this is not a very probable occurrence. In shape of the flower this is a fine type of *C. insigne*, and the colour, a uniform pale yet clear bright creamy yellow tint, is quite unique.—LEWIS CASTLE.

(To be continued.)

MAKING CHARCOAL.

GARDENERS having to deal with soil of a heavy retentive character find charcoal valuable, as not only does it render such soil sweet, but it acts as a storehouse for ammonia, as it does also in that of a light character. Where the roots of plants are confined in pots, and in the case of Vines or any kind of fruit trees, which are of necessity growing in soil of a heavy nature, the use of charcoal is undeniable. Chrysanthemums are the better for an abundance of charcoal mixed with the soil; but the lighter the latter is the less charcoal is needed, as no plant with which I am acquainted, except an aquatic, requires more water at the roots than Chrysanthemums. Gardeners living in the country have abundant opportunities to make charcoal if the necessary knowledge is obtained. In most places there is an annual or a biennial thinning of branches or trees, and from these thinnings a supply can be obtained.

It is not necessary to burn charcoal every year, for it will keep for several years, provided it is in a dry place. Charcoal burning provides employment for the men during the winter, when other outdoor work cannot be proceeded with, or when other duties do not press so heavily. It does not matter in what month it is done, provided it is between the time the leaves are shed and before the new growth appears. Although I prefer Beech wood, it does not matter what kind is used. Spruce Fir is perhaps the least desirable, as it is rather more liable to burn into ashes than charcoal. It is not necessary to dig a hole in the ground before burning, as is sometimes practised by charcoal burners. I make ours in the reserve ground, where are stored the manure heaps, vegetable refuse, and old potting soil, which reduces the labour considerably, as we make use of the materials named to assist in the burning of the charcoal. For convenience in burning, the wood must be cut into lengths 4 feet long, commonly called "cord" wood, and averaging from 4 inches to 6 inches in thickness. If larger pieces than these are used there is often considerable waste through the burning of the outsides at the expense of the central parts. Where the wood is of a mixed character it is important that the pieces be smaller, as some sorts require more burning than others.

Proceed to form the base of the heaps, which should be, say, 6 feet in diameter, although larger heaps can just as well be made. I mention this size to convey to those inexperienced in the matter some idea of what wood is required. Where the heaps are larger the stack should be made of that width at the base, but as much longer as is necessary, but in the case of a small quantity a circular heap answers very well. In the centre we lay a small bundle of straw, covering it with small sticks; old pea sticks will answer equally well. This is to ignite the larger pieces of wood which are stacked on their end in pyramid form, building from the centre outwards, and placing the wood so that the flames can pass evenly through the whole heap. The wood may be stacked 6 feet high, and that measurement to 8 feet wide at the base will insure a quantity of charcoal being made.

When the stack is formed commence banking it in with partly decomposed wet manure, leaving two holes each 1 foot square at the bottom opposite to each other on two sides of the heap. These holes are to provide a current of air through the stack, which assists the centre to burn more freely. In the case of a heap 6 feet high the manure may be placed around it 4 feet high and 1 foot thick. The reason for laying it on before the wood is lighted is that, owing to the heat of the fire when once well alight, the burner cannot get near enough to place the smothering material around quickly, therefore as much preparation should be made as possible before lighting the wood. The straw is ignited at both sides at the same time through the holes previously mentioned at the base, and in from three to four hours the wood will be sufficiently aglow to require the whole to be gradually covered with the manure. Where much green wood is used a longer time is required for burning before covering; neither should all the green wood be placed together if some to be burnt is dry.

The outside surface of the manure must be airtight; if not, the air passing through or into the heap will cause the wood to blaze and burn into ashes rather than be "smothered" when a certain stage is reached, and consequently made into charcoal. Some fine soil laid over the manure will effectually stop the air passages. The holes at the bottom should be blocked up last, leaving all secure for the night. If in the morning the fire has burst through it must be at once re-covered.

If the wood used was all green more time will be needed for it to burn thoroughly, and the day after lighting two or three holes should be pushed through the bank of manure with a long stick to encourage the burning of the green wood by the admission

of air to these parts, allowing it to burn freely for a time until it is thought the whole is well alight again, as green wood does not burn so evenly nor freely as dry wood when finally covered. The holes made in the sides should be covered again as before.

The time required to keep the heap smothered depends upon the kind of wood employed; where it is dry four days will be long enough, but where all is green five days will be necessary. Proceed to uncover the heap by commencing at the top to prevent the soil and manure becoming mixed with the charcoal by falling inwards, as would be the case if the bottom part was removed first. If any signs of breaking afresh into flames occur have water at hand to



CATTLEYA LABIATA VERA.

No Orchid for some years past has created so great a sensation as this, and as another large sale is announced for Friday next, January 15th, at Messrs. Protheroe & Morris' Rooms, Cheapside,



FIG. 3.—CATTLEYA LABIATA VERA.

extinguish them gradually as uncovering takes place. By allowing it to burn afresh at that stage the charcoal is quickly reduced to ashes and the labour lost through a few minutes' neglect. We separate the charcoal into two sizes by removing the small parts with the aid of a half-inch sieve. What passes through the latter is useful for mixing with top-dressings of soil and manure for fruit tree borders, as it contains a good deal of ashes, and the larger pieces of charcoal keep so much better than when mixed with the small, as the air can the better pass amongst it. The reason why we use manure for covering the heap instead of soil is that the former is less likely to fall through between the pieces of wood piled endwise, and of course the charcoal is cleaner.—E. MOLYNEUX.

we take this opportunity of giving an illustration of a plant, for which we are indebted to Messrs. Sander & Co., St. Albans, who have already flowered several very distinct varieties.

At the sale named Mr. F. Sander will offer an enormous specimen of this Cattleya, and the amount realised for it will be given as a New Year's gift to the Gardeners' Orphan Fund. Messrs. Protheroe & Morris have kindly consented not to charge commission on the sale of this plant. "The specimen is in specially grand condition. It is rare indeed that a collector comes across a specimen of any kind of Cattleya so large as this is, but it is altogether extraordinary in the old labiata, for it is known to us that this Cattleya rarely grows into large specimens in its native

country. We had, when the necessity came of getting home this *Cattleya* in quantity, three of our best collectors in the districts of the old labiata—Mr. Ericsson, one of our oldest and most tried collectors, who has sent home during the last ten years many fine novelties to us, among the *Cypripediums*, *Rothschildianum* and *Sanderianum*; Mr. Oversluys, also one of our oldest and best men, and the discoverer of *Odontoglossum Schröderianum*, *Sobralia Sanderæ*, and many other new Orchids; and Mr. Forget, a young Frenchman and a collector of great promise. All three were together on an exploring tour when Mr. Forget espied the wonderful specimen high up on the branch of a tree; the natives soon felled it, and the plant was very carefully taken to the port and shipped home. To the great care taken with it the extra fine condition is due. The specimen has some 250 bulbs, with many sheaths ready to bloom, and is full of green leaves."

The beauty and usefulness of *Cattleya labiata vera* and its numberless variations are indisputable, and with the several novelties promised in other genera, the sale should be an important one.

CYPRIPEDIUM INSIGNE.

Where these have flowered in a moderately cool house and since rested under cool conditions they may be started into growth. Having grown large supplies of this variety for years, we have found them succeed admirably by introducing them about the present time into a vinery that has been started. They make strong growth under these conditions, and if allowed to remain under the shade of the Vines and given the cool airy treatment they require throughout the season the plants flower profusely. Well established plants liberally supplied with water during the season of growth produce large blooms, and we are often favoured with two from one stem. Large pans full of roots do well for years if top-dressed annually with a few lumps of peat, a little moss, and cow manure in a moderately dry state. This may be done at the present time, while plants that it is desired to grow on may be repotted. We have carried out this work at various times with no perceptible difference in results. We prefer, however, to report those that need it before they start into growth, so that no damage be done to young roots after they commence extending. These plants do well in peat, charcoal, and crocks used in a rough condition, moss being used on the surface only. If the material about the roots is in good condition, potting may be done without disturbing the roots. If it is thoroughly decomposed it should be washed from amongst the roots with tepid water.—ORCHID GROWER.

SACCOLABIUM GIGANTEUM.

WITHOUT a doubt one of the finest pieces of *Saccolabium giganteum* in cultivation is a plant at Court Hey, Broad Green, the residence of A. R. Gladstone, Esq. The plant in question was sent direct from Burmah to Court Hey in 1886, and had at that time five growths. It was placed in a basket 15 inches square, the compost being charcoal and crocks, with a surfacing of sphagnum moss. Since then it has never been disturbed, and the soundness of the system is evidenced by the thick fleshy roots with which the basket is intertwined. Now it has eight strong healthy growths and fourteen racemes of flower, which have collectively about 600 individual flowers. The scent is delightful and the plant a perfect picture, and one which Mr. Gladstone deservedly treasures. Mr. Elsworthy, the gardener, is noted for his fruit culture, and it is pleasing to add this short note on his success in another department.—P.

SCARCITY OF VIOLETS.

I CAN agree with what Mr. Molyneux has to say at page 559, particularly as to the importance of getting the plants into the frames in September. This has been my practice every year since I have grown Violets until the present; but this time, partly for want of time and partly owing to the continued wet weather, I was three weeks later than I otherwise should have been, and what is the result? My plants did not become established before the cold nights came, and I have not had the usual quantity of fine blooms which in former years I have been able to gather during the whole winter.

I cannot say that the past summer was altogether favourable to the growth of the plants, or that they did not make sufficient foliage. On the contrary, they really grew too vigorously, the leaves being soft and of bad colour. Consequently, I think the plants should have been placed in the pits or frames some weeks earlier instead of three weeks later. It would be useless trying to make up for lost time by placing hot manure under the plants; in fact, this would only aggravate the evil, causing the leaves to grow spindly, and be more susceptible to damping. Nothing better

could be done than to follow Mr. Molyneux's advice—viz., to give abundance of air at all times when it is not raining or freezing.

Now is the time to prepare for another year by trenching and manuring the border on which they have to be planted in the spring. I find that a good coating of soot and lime well worked into the soil, and from 2 to 3 inches of good manure, leaf soil, or artificial manure of some sort is necessary to grow Violets well. The more robust they grow the less they will suffer from the attacks of red spider, which is their great enemy.

I fear that owing to the thin nature of the leaves mildew or damping will cause some trouble during the winter. This rarely attacks robust plants where the London fogs do not reach them.—T. A.

FRUIT CULTURE.

EXTENSION V. RESTRICTION.

THE resources of our home fruit supply are inadequate to the demand, and, consequently, large importations annually have to make up the deficiency. As horticulturists, I regret to say we have sadly lacked foresight. We may have been keenly alive to the value of fruit as an article of diet, but the importance of growing it of the first quality for the market and to meet an increasing demand appears only recently to have dawned upon us. High-class fruit culture has not been extended to any great extent beyond the gardens of the affluent, who, up to the present, have grown it mainly for their own use. I am perfectly aware that many orchards and fruit plantations exist in various parts of the country, but, unfortunately, for the most part they have been managed by men unskilled in the production of first-class fruit. We must not overlook the poor condition of the majority of these orchards. In too many instances the trees have long ago started the downward course, and are in a rapid state of decay. Their moss and lichen covered stems and branches may charm the naturalist and the artist, but to those anxious to promote the growth of first-class fruit for the teeming masses of humanity they have no attraction. They should long ago have been swept away and others planted full of energy, trees that have youth and vigour on their side. It is from these, and these only, under good management, that fruit can be obtained that will compete favourably with foreign produce. It must be freely admitted that we have been asleep while others have anticipated our wants and provided for them. We have the experience of the past to guide us, and it is to be hoped that we may eventually profit by the valuable lessons our inactivity has taught us.

The suitability of land in this country for fruit growing we need scarcely consider. That is beyond question and dispute. We have abundance that is suitable in every way, and in every county, throughout the kingdom, some soils and some localities being more favourable than others, but there are few indeed in which a limited number of varieties cannot be grown to a high state of excellence. The preparation of the land, how this should be accomplished, and the most economical methods are of importance, and cannot be passed without consideration.

Our climate's variableness, absence of sunshine, and liability to spring frosts, are frequently placed before us in order to prove that fruit growing on a large scale would be folly. The experience we have gained proves beyond a doubt that our climate is equal to, if not superior in some respects, to that of any other nation for the growth and development of hardy fruits. If we have not the amount of sunshine in summer enjoyed in America, we have the advantage in winter, as the trees have not to endure such intense cold. Whether the large amount of sunshine to which the fruits are exposed in America is an advantage is an open question. I am inclined to think it is too hot for many hardy fruits, especially for the Apple, and if we grow fruit largely for the market, it is against these mainly that we shall have to compete. Transpiration of water from the fruit during hot weather must be enormous, which accounts no doubt for the mealy nature of the fruit sent to this country. What is the condition of our own fruit when well grown? It is crisp and full of juice, there is no comparison between the two. We may dismiss this part of our subject by saying that well-grown British Apples are much superior to those from America.

We may just glance at one other matter in passing that is frequently urged against fruit growing—namely, the difficulty of disposing of home-grown fruit at remunerative prices. This is perfectly true, and I am not surprised that such a state of things exists. We may, however, inquire into the cause. The bulk of the fruit sent to the market is miserably small, poor in appearance, equally poor in quality, gathered mainly from trees that are merely existing in many cases, the fruit often being shaken from the trees instead of being gathered carefully, the fruit being rarely if ever sorted into first, second, and third quality, the latter

destroying the appearance of the former. Frequently—in fact, generally—the fruit is badly packed and in a wretched condition when it arrives in the market, much worse than when it leaves the grower. One other reason, and an important one, is the fault of glutting the market. At gathering time they are rushed in as they are taken from the trees, instead of storing all those that will keep for a time. Hence the poor prices home-grown fruit often commands. Fruit must arrive in the market in good condition to find a ready sale, be prepossessing in appearance, and of good quality, then foreign produce need not be feared.

Since fruit growing has become an important question, and commanding the foremost attention of horticulturists, there is no lack of information relating to some of the most important matters connected with this subject. There is considerable anxiety to renovate existing trees, and to substitute productive varieties that will bear fruit freely, and of a suitable nature to find a ready sale. The question that is most important is, Are the old trees that form many of the existing orchards worth renovation? If so, what means would be most suitable? The general opinion is, that trees of unsuitable kinds that are young, or approaching middle age only, clean, healthy, and full of vigour, might be profitably cut down and regrafted. Trees of this nature would furnish good heads, and no doubt in the course of a few years would yield profitable crops of fine fruits. But even this process opens up a question of some magnitude, that appears to be lost sight of by those who recommend these methods of procedure. The question to which I allude is that of the stock and its influence on the tree and its fruit, but for the present this must be left. We shall make no great progress in fruit growing if we waste time in trying to put young heads on to old trees that are worn out. There is a limit to the life of fruit trees. Decline, decay, and eventually death are inevitable, and must come sooner or later, and therefore it is a waste of land, of time, and energy to attempt to impart new life to trees whose energies are flagging past recovery, and whose decline is a certainty. New growth might prolong life for a few years by calling into activity new roots, provided decay had not commenced. If we begin by trying to renovate old trees we shall certainly begin at the wrong end towards the attainment of the object we have in view. My advice is, make new plantations, and when they come into bearing clear the ground of old useless trees, and crop it with something else until its fertility has been thoroughly restored. I strongly condemn the clearing of ground of old trees and planting of fresh ones in the same place. Under such circumstances the best results could scarcely be expected unless considerable expense were entailed in the preparation of the soil.

No hard and fast rule can be laid down in the preparation of the land previous to planting. The texture of the soil, its depth, the subsoil, and the manner in which it is drained must guide those to whom this work is entrusted to a very great extent. Thorough drainage is important. Its value cannot be over-estimated if good results are to follow. The well-being of the tree depends largely on having thoroughly drained land in which to grow. Thorough drainage insures a higher temperature in the soil, and often preserves the trees from canker. The value of a deep fertile soil for fruit growing is of the first importance, and deep cultivation equally essential. The deeper the soil and the deeper it can be worked the better; their roots can then penetrate sufficiently deep to hold them firmly in the ground, and insure them against suffering by drought without evil consequences following. Land that has a depth of 18 inches or 2 feet of fertile soil, and can be trenched that depth, is in admirable condition for planting. Trenching would prove a costly operation in fruit culture on a large scale, and I am not sure in the end whether it would not pay to trench the soil thoroughly previous to planting; but this depends largely on what trees are planted. In any case large stations on similar principles could be made. All soils will not bear trenching, and more harm than good would result in a number of cases. Under any circumstances I do not advise casting the surface or fertile soil into the bottom of the trench and bringing the unfertile to the surface. This would do very well if the ground was cropped afterwards for two or three years to render it fertile.

Under any circumstances only as much of the lower soil should be brought to the surface as can be by exposure to the weather be duly pulverised; therefore, what is known as bastard trenching is advised. When large plantations are to be made we should prefer to carry out this work with the plough. The first furrow would be deeper than usual, so as to bring to the surface a little of the lower soil. The lower soil would be loosened to the depth of 6 or 7 inches by the aid of the subsoil plough. The soil should be well broken up about the roots of the trees, and if the remaining surface is left rough the weather will act upon it so that it can be freely and easily worked in spring. Heavy land is difficult to reduce, and requires considerable attention in its preparation before it is really

in a suitable condition for planting. The greater portion of the orchards are planted on land that is ploughed only in the ordinary way, and the furrows guide the planter where to place the trees. Trees do very well even then, but they are worthy of a better preparation.

Land that has been well manured for a previous crop is the best for planting on, so that it will not be necessary to work or plough manure into the soil; in fact, under no circumstances do I advise this. To place about the roots of each tree a barrowful or two of prepared compost, as we are in the habit of doing in private gardens, is out of the question. A quantity of manure in close proximity to the roots would, in my opinion, do more harm than good. If the land required manure the best method would be to spread it on the surface about the trees after planting or preceding growth. It would then work down to the roots in a natural manner. There would be very little waste of the valuable properties of the manure, which would take place by any method of incorporating it with the soil previous to planting.

Soil rendered rich by heavy dressings of manure is liable to promote strong luxuriant growth that has no chance of being thoroughly matured. This cannot be an advantage, but the reverse, although the effect may not be visible for some years. I am strongly inclined to believe that the seeds of canker may in many cases be traced to the early stages of the plant's growth, perhaps before the trees are planted. The stability and health of trees, to my mind, depend largely upon the condition of the wood they make, whether thoroughly matured or otherwise. Trees that make moderate growth should build up a healthy, robust constitution, all else being satisfactory for them, while in those that make luxuriant growth we should anticipate disease sooner or later in some form or another, and the most probable is canker. For light soils a heavy dressing of clay would prove of greater advantage to the trees and permanent improvement of the land than heavy dressings of manure during the first, or few first years after planting. It is a mistake to suppose that land practically occupied with fruit trees needs no attention in manuring after the trees are once planted. They should be kept in health and vigour after they commence fruit bearing, and this can only be accomplished by the application of manure occasionally, and we know of no better means of applying it than by spreading it on the surface. There is no more waste in applying it on this principle than by any other method.

Not half the attention necessary to keep the ground free from weeds is devoted to this important work. We observed during the past season several orchards of young trees practically overrun with rank weeds. If those who manage orchards on these negligent principles could but realise the amount of waste that was going on they would endeavour to keep the land clean. If fruit-growing is to be conducted as a profitable concern all the plant food available in the soil should be carefully preserved for the trees, and no useless crop allowed to rob the ground of valuable food that, sooner or later, will be needed for building up the tree and the production of fine fruits. The fact must not be lost sight of that if fine fruit is to be produced that will find a ready sale, the cultivator must not be content with puny growth annually; but the energy and vigour of the tree must be maintained, and then fine fruit and satisfactory returns will result.—WM. BARDNEY.

(To be continued.)

NOTES ON GLADIOLI.

I AM sure the many readers of the Journal who admire the princely Gladiolus enjoy and appreciate, as I do, the notes contributed on this flower by "D., Deal," whose ripe experience makes me diffident that the remarks of a comparative tyro may be of little interest. The notes on pages 520 and 536 lead me, however, to think that experiences in the south-west of Scotland may perhaps be worthy of publication.

The season has, upon the whole, been a good one, although the corms have ripened slowly, and on January 1st I just finished harvesting mine. We have had but little frost; but the dull, wet weather seems to have retarded the ripening process, and even yet some are no more than ready for lifting. My losses have been almost nil, and I must express my sympathy with your contributor in having lost so many. The corms are, as a rule, of a fair size, firm and solid, but not equal in size to those of 1890. The most unsatisfactory in this respect are some of the French varieties. My experience has been that the corms produced by newly imported varieties are not so good as those produced after the variety has been grown in my garden for a few years. On my dry soil I find it beneficial to sprinkle Clay's fertiliser or Amies' manure over the soil, and afterwards to give a good soaking

with water. I do this as soon as the spike begins to show and continue until the first flower opens, when the manure is discontinued. While my garden is an early one in spring it is somewhat late in autumn, and, as our local show is held early in August, I find it necessary to start my *Gladioli* in boxes in the greenhouse. They are not planted in earth, but are placed in a light, fibrous material composed of some species of seaweeds and decayed leaves, washed up by the Solway. In this the tender, brittle roots have a free run, and the corm can be lifted with the fibrous material adhering to the roots, and can be planted without injuring the latter. My first spikes were cut about the 5th of August. For a considerable number of years I have practised the system of cutting the corms which "D., Deal," recommends, and my experience agrees with his that the spikes produced by cut corms are at least equal to those from the uncut ones.

The article on "*Hardy Gladioli*," on page 536, opens a wide field for discussion and comparison of experience. Like your correspondent, I have grown several varieties of the *Lemoinei* section, and feel disposed to agree with his estimate of their comparative value. Some of the older varieties are, from the hooded form of the flowers, very pleasing in the borders, but what seems to be the result of the larger infusion of the *gandavensis* type has been the loss of the distinct form, and so close an approach to the *gandavensis* section that it is difficult to detect some of the better forms of the *Lemoinei* section from some inferior and poorly coloured varieties of the other.

I have not yet grown any of the *nanceianus* section, and can only say that I do not at present feel inclined to devote any of the limited space I can spare for *Gladioli* to their culture. At the end of August I had the opportunity of seeing a large number of the new varieties of *G. Lemoinei* and *G. nanceianus*, and my opinion of their merits seems largely to coincide with that of your contributor. There was none in either section worthy to be compared with the grand spikes and exquisite shapely flowers of the best varieties of the *gandavensis* section. The collection was a choice one, and my general opinion is that the flowers of the *nanceianus* are coarse, ill formed, and wanting in substance, and in some respects inferior to the *Lemoinei* varieties, which are as much inferior to the *gandavensis* section. I do not wish to depreciate in the slightest degree the results achieved by the raisers. I have little doubt that in a short time their labours will give us new colours and markings, which will add to the popularity of the *Gladiolus*, but I think we should guard against the enthusiasm for "new things" which would substitute inferior flowers for those triumphs of the florist's art which are to be found in the hybrids of *gandavensis*.

As your able contributor says, the question of their hardiness is a relative one. Here I can with perfect safety leave my *gandavensis* varieties in the ground all the winter if planted at a moderate depth, but my experience has been that the disease is more virulent among those thus left, either by accident or design, than among those lifted and kept dry. I have as yet had no disease among the *Lemoinei* varieties, but there is so little to be gained by leaving them all winter that I do not feel disposed to run the risk of their loss from disease. The original *purpureo-auratus* I have not had sufficiently long to speak of with confidence, but *G. communis* is, of course, thoroughly hardy here, as is also *G. segetus*. Some improvement has been effected in the latter of late years, and I think the hybridisers might do a good work by devoting some of their attention to this species, which from its earliness and hardy habit would be of great value if improved.—S. ARNOTT.

SIXTY YEARS OF HORTICULTURAL PROGRESS. (1760—1820).

(Continued from page 492, last vol.)

THOSE persons who were acquainted with the London district at the time of the accession of George III., if they had opportunities of surveying it towards the end of last century, could not but be impressed with the increase of nursery and market gardens, especially in West Middlesex and along the Surrey hills near the Thames. The fact testified not only to the growth of the metropolis, it also indicated how steady was the advance made in horticulture, despite the adverse effects of long and expensive wars. Possibly it might be argued that the interruption of communications between the Continent and Britain had at least one good result as a set-off against its evils, our countrymen of that period were led to rely more upon themselves. Far too much importance had been attached to some of the plans and methods which had been copied from French or Dutch gardeners, and now English folks had a capital opportunity for practically testing, and then improving these.

In the matter of fruit growing, probably also in some other things, the nurserymen of Middlesex and Surrey acted differently. Very large orchards existed about Fulham and Kensington, and in these it was a general practice to plant bushes amongst the rows of fruit trees, though there were some objections made to this, just as there are now; a principal one was that the Gooseberries and Currants did not have sufficient air and light. Across the river it was more usual to have vegetables sown at intervals in the orchards, and the Surrey men used to say that in Middlesex the practice of applying large quantities of manure to the trees did not benefit them, while it produced a rapid growth of certain weeds. Looking at the Vauxhall and Stockwell of 1892 it is difficult to picture this district as one abundant in fruit crops about a century ago. A little distance along the Wandsworth Road was the nursery of Mr. Phillips, who received on two occasions gold medals from the Society of Arts for choice varieties he had produced. Kennington Oval was a piece of waste land like the adjacent common, but it was reclaimed by Michelson, who made a great display year after year of choice exotics, and lived to be a centenarian. His garden was converted into a cricket ground about 1830. One thing that especially stimulated the culture of fruit near London was the importation of forced or early fruit from Belgium and Holland. A Mr. Braddick obtained several good varieties of the Pear through a Flemish friend, who had been an extensive rearer of Pears from seed himself. He reckoned that he had grown something like 80,000 young plants, but said that few of these seedlings were of any value. The *Beurré Rouge* and the *Golden Beurré* were, it seems, new arrivals from Holland. From France they obtained several varieties of *Bergamot*, *Blanquette* and *Jargonelle*, with others; and a winter Pear called *Pear d'Auch*, considered superior to any grown before in Britain, was obtained by the Duke of Northumberland in 1780, the locality is uncertain. It is about this date that we find the first appearance of new Apples obtained from across the Atlantic, such as the *Newtown*, the *Baltimore*, the *Fameuse*, and the *Pomme Grise*. Of the seedlings raised in Britain several of the best came from Scotland, which, as we have already shown, has been, though small in dimensions, a country exerting no mean influence on horticulture.

I have now to mention a native of Scotland, who, though no author, occupies a notable position amongst the Georgian gardeners, but, unfortunately for himself, he failed in some enterprises which ought to have given him personal benefit, while they helped to increase our exotics and enlarge our knowledge of the habits of plants. John Fraser began life as a hosier, but, living in Paradise Row, Chelsea, he became friendly with the gardeners of the neighbourhood, and resolved to visit the United States in search of rare plants. Leaving England in 1783, he sent home consignments of plants to a friend at Brompton. On his return, however, he found that these had been lost or neglected. Soon after he started again, and brought from the Carolinas various *Conifers*, *Magnolias*, *Azaleas*, and *Rhododendrons*, also other new species. This was in 1788, and he repeated the visit in 1790 and 1791, taking afterwards a plot of ground in the King's Road for the exhibition and sale of American plants. He was so successful in propagating these, that he was able to take in person for purchase by the Empress Catherine a choice assortment of these, going to St. Petersburg in 1795. Four years after, Fraser and his son started again for America and the West Indies, were shipwrecked, and, having escaped other dangers, they returned to England in 1791 with additional rarities. Other excursions and journeys followed; but the American nursery was neglected during his absence, vexation and fatigue shortened his life, and he died at the comparatively early age of sixty-one.

Rather better known than Fraser's establishment, owing to its longer history and more extensive collections of plants, was the nursery founded by Mr. Colvill, and situate also in the King's Road, near Blackland's Lane. It dated from about 1790, and in a few years it became famous for its collections of rare and curious exotics, of which reports reached other countries, so that foreigners interested in plants made a point of visiting Colvill's nursery. He constructed one large house, in which a variety of tropical plants were placed along beds of earth, so disposed as to appear as if they were growing naturally. Another house he erected which created much astonishment. He had placed in it some trunks and branches of trees, to which were nailed here and there shells of Cocoa-nuts and small wooden bowls. In these he inserted *Orchids* and various creeping or parasitic species. Then he had a house fronting the road that was entirely devoted to *Geraniums* or *Pelargoniums*, of which he was supposed to have between 400 and 500 kinds. A book was published upon the *Geraniaceæ* by Robert Sweet, F.L.S. It came out in parts during 1815 and 1816, the figures being nearly all taken from specimens produced at this nursery. Amongst the plants he specially studied the *Camellia* was one. He reckoned that he possessed quite

200 varieties of this genus; he also cultivated the genus *Amaryllis* largely. Close to the gardens of Colvill were those of Davey. He was also famous as a florist and fruit-grower, but did not rival Colvill. To the north, upon ground near Sloane Street, were the nurseries of Catleugh, remarkable for the quantity of evergreens that were sent out. In their forcing houses Pines and Cucumbers were largely raised for the London market. At that date very few Pines reached England from abroad. William Curtis, the botanist, of whom mention has been made, towards the end of the eighteenth century took a plot of land at Old Brompton for a botanic garden, and afterwards joined Salisbury in his enterprise of laying out several acres in Sloane Street, which was at first called Sloane Square, subsequently Cadogan Gardens, and continued, under different owners, to be an emporium of exotics till a few years ago. They, too, called their establishment an American nursery. Most of the plants were carefully labelled and arranged.

The appearance of the name of "Swiss Nursery" in the London suburbs marks the date of a commencing demand for Alpine plants. One of the first, if not the first, of these was opened by Denyer, at Cromwell House, Loughborough Road, Surrey. Potter and Moore are said to have commenced the cultivation of fragrant and medicinal plants in the neighbourhood of Mitcham in 1788, and from the small beginning with Roses, Lavender, Peppermint, Thyme, and a few other herbs, this has extended to what we see at the present day, when the whole district is odorous in summer and autumn.—J. R. S. C.



EVENTS OF THE WEEK.—Owing to the meeting of the Royal Horticultural Society falling upon the day announced last week for the meeting of the Provisional Committee of the proposed International Fruit Show in London this year, it was postponed until to-day (Thursday), when the meeting will be held in the Cannon Street Hotel at 3 P.M. The annual general meeting of members of the Gardeners' Royal Benevolent Institution will be held at "Simpson's," 101, Strand, on Friday, Jan. 15th, to receive the report of the Committee of Management, to elect the usual officers, to transact general business, and to place thirteen pensioners on the funds, seven of whom will be elected by ballot. The chair will be taken at three o'clock, and the ballot will close at five o'clock precisely. The annual Lark Pudding Dinner will also be held the same evening, at six o'clock, the Rev. W. Wilks in the chair. Messrs. Protheroe & Morris advertise several sales for the current week; a large consignment of *Lilium auratum* will be sold to-day, and to-morrow (Friday) Messrs. F. Sander & Co. have a sale in the Cheapside Rooms of 2000 *Cattleya labiata*, together with several novelties.

— **THE WEATHER IN THE METROPOLITAN DISTRICT** has been somewhat changeable, but cold, with a little snow and sleet at intervals. The frost on Tuesday morning was rather severe, 14° being registered in several suburban gardens, and from some places we hear that the thermometer fell as low as 10°.

— **DEATH OF MR. J. WESTCOTT.**—We are informed that Mr. J. Westcott, the well-known gardener at Raby Castle, Durham, died last Saturday. He occupied his position most creditably for many years, and was highly respected far beyond the district in which he resided.

— **GARDENING APPOINTMENT.**—Mr. Alex. F. Grant, for six years gardener to E. Beveridge, Esq., St. Leonard's Hill, has been appointed gardener to Lord Grosvenor, Bulwch Park, Northampton.

— **THE Council of the Royal Meteorological Society** have arranged to hold at 25, Great George Street, S.W., from March 15th to 18th, an **EXHIBITION OF INSTRUMENTS, CHARTS, MAPS, AND PHOTOGRAPHS RELATING TO CLIMATOLOGY.** The Committee will be glad to show any new meteorological instruments or apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest.

— **ASPARAGUS PLUMOSUS FROM SEED.**—In his article on table plants, p. 7, "S." mentions that the valuable *Asparagus plumosus nanus* is increased by division only. For the benefit of intending growers I should like to state I have been successful in raising plants from seed sown in November, but the proper time is during February or March, in heat. When the plants are large enough we prick them into small pots, and keep them in heat until June, when a cool house will suit them.—J. MOGRIDGE.

— **WEATHER AT LIVERPOOL.**—During the past week the weather has been of a very severe character. Snow has fallen freely, and the whole country has the aspect of real wintry weather. In addition the winds blowing from N. and N.E. have been intensely cold. A change would be welcomed, for outdoor work is, to some extent, behind, owing to the very wet weather during the past two months. The night temperatures from January 4th to 11th have been 20°, 19°, 28°, 22°, 16°, 6°, 12°, 24°.

— **THE LIVERPOOL HORTICULTURAL ASSOCIATION.**—Last Saturday evening a moderate attendance of members assembled at the Lecture Room, William Brown Street, Liverpool. The paper which should have been read by Mr. J. Kelly, was entitled "Culture and Forcing of Spring Flowering Bulbs." Mr. Kelly telegraphed his inability to be present, and an interesting discussion on *Lachenalias*, *Amaryllis*, &c., took place amongst the members present.

— **CHRYSANTHEMUM MRS. E. W. CLARKE** is a useful late flowering variety. It is perhaps the nearest approach to the incurved type that it is possible to find in the whole section of Japanese. The colour reminds one of the incurved variety Prince of Wales. The habit is good, and our plants from terminal buds are now carrying excellent blooms, which are peculiarly scented. It is a most desirable variety to grow, and one which ought to be in every collection.—P.

— As a portion of the series "Science in Plain Language," by Mr. William Durham, F.R.S.E. (Adam & Charles Black) a volume has just been issued entitled "FOOD, PHYSIOLOGY, &C." This comprises 123 pages, and in four sections deals with solid foods, liquid foods, constituents of foods, and physiology, in a clear and simple manner. Under solid food some interesting facts are given with regard to vegetables, comparing their respective value as foods.

— **CARNATIONISTS.**—So the American florists have invented a new designation for the cultivators of the Carnation, a flower which is now very popular in America, and where a Carnation Society has been formed. Picotees, of which we have such splendid varieties, are at present classed with Carnations; but will there some day be "picoteists" in the States? Chrysanthemums are fully as popular in America as with us and as well grown, and there are Chrysanthemum societies everywhere; and the growers of this popular flower are now dubbed "chrysanthis," as we see by the *American Florist*. Well, if we go on at this rate are the Pansy growers to be pansyists, Dahlia growers to be dahliaists, and so on? It is true we have rosarians, pomologists, florists, and horticulturists; but are we to expand, and become roseists, appleists, onionists, potatoists, and a lot of other "ists?" I am still—MUM.

— **REMOVING WHITEWASH FROM GLASS.**—A little sulphuric acid added to a pail of soft water, enough, say, to make it about as sour as weak vinegar, greatly assists in washing whitewash shading from glass. The whitewash is put on as a hydrate of lime. After a time it is converted into a carbonate by the action of the carbonic acid of the air. The sulphuric acid facilitates removing it by decomposing the carbonate and forming sulphate. The lime on the glass neutralises the acid, so that there can be no harm in the practice recommended, unless too much acid be used. I used this method of removing whitewash from the glass of some of the greenhouses and found it worked admirably. A mop or brush on a pole may be used. The labour is reduced to a minimum by rubbing each spot moistened immediately, washing the product off with a syringe or hose, if necessary to have the glass clean at once. If not, it may be left for the rain to remove. The persistency of the whitewash on the glass is due to using the lime too fresh. Air-slaked lime makes a wash that comes off readily—too readily. But it is better to apply the wash several times if necessary than to use a wash that will prove very troublesome to remove. Naphtha and white lead of the consistency of milk has been recommended as a greenhouse shade, but this does not come off without the help of lye. It is a lighter shade than is ordinarily made with whitewash.—(*Mechan's Monthly*).

— **APPLE BENONI.**—In looking over some back numbers of the *Journal of Horticulture* I see a favorable notice of the above Apple. I have not found it so profitable as the writer. I have had a tree planted for ten years, and on looking over my fruit notes for that period I can only find it has borne once, and then it was a bad crop, so that my conclusion is that the name given to it, which means "son of my sorrow," is a very suitable one.—**WALTER KRUSE.**

— **JUSTICIAS FOR WINTER AND SPRING.**—A correspondent recently mentioned *Justicia flavicoma*, and he was quite correct with regard to the treatment of *Justicia*. We have two kinds here that have made a fine show for several years past in the spring and summer, and I find several at the present time are showing their spikes of flowers, these are *J. carnea* and *J. coccinea*. Cuttings are struck and allowed to flower on the single stems about 8 to 12 inches high. They are then useful plants for the table as the colour shows well by gaslight.—**G. CLEMENTS**

— **A RE-ISSUE of the chatty little volume "A YEAR IN A LANCASHIRE GARDEN,"** by Mr. Henry H. Bright (Macmillan & Co.) again brings within the reach of readers many original and instructive thoughts pleasantly conveyed. The chapters deal with seasonable subjects extending from late autumn and winter through the spring and summer to winter again, the appearance of the garden at each period discussed with special reference to hardy flowers, but also including notes on fruits. A supplementary chapter and notes elucidating some of the preceding portions of the work are also included.

— **UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The last quarterly meeting of the year was held at the Caledonian Hotel on Monday evening last, Mr. Nathan Cole in the chair. Nine new members were elected, bringing the benefit membership up to 423. Four new honorary members joined during the year, bringing the number up to fifty-five. Sickness has been very prevalent, seven members being on the funds at the present time. Four deaths have occurred during the year. The Committee earnestly ask the co-operation of the members in inducing others in the profession to join this very useful Society. The annual meeting will take place on Monday evening, March 14th, at eight o'clock.

— **BIRDS ATTACKING AND DESTROYING BUDS.**—There is not the slightest doubt but that birds do a great amount of damage in some districts in destroying fruit buds, especially Gooseberry buds, but there are several means of preventing this. Often sparrows are very tiresome, though by adopting the following plan I have succeeded in stopping them:—To 4 gallons of water I add two wineglasses of petroleum. This is mixed as well as possible. Syringe the trees, and repeat the application in about three weeks' time, weather permitting. It is also a good plan to have Cherry and Plum trees, after being pruned, syringed in the same way. It not only helps to save the buds, but acts as a preventive against black and green aphides during the summer months.—**A. E.**

— **FORCING IRISES.**—Those who are fortunate enough to have a good supply of Irises in herbaceous borders, and those requiring abundance of flowers for Easter, will find the following plan is worthy of a trial:—Lift a few clumps and place them in pots thickly together. Arrange them in cold frames for about three weeks, then bring them into a vinery just starting or a Peach house. Without further trouble they will throw up their useful Orchid-like flowers, which, combined with *Deutzias*, are very striking for conservatory decoration at Easter. After they have flowered, care should be taken not to discard them if wanted for succession, but plant them out in the garden as soon as the weather is genial, and during the summer water them with liquid manure.—**A. E.**

— **POTATO THE GENTLEMAN.**—Last season Messrs. Veitch and Sons distributed for the first time three distinct new varieties of Potatoes, named respectively *The Gentleman*, *The Amateur*, and *The Cottager*, and I gave a good trial to each of them. Unfortunately the two last named, though they made a good start, were not sufficiently robust to withstand the disease, and they were comparative failures accordingly. Not so *The Gentleman*. This variety grew strongly, and to a certain extent defied the disease, though I have no doubt the crop would have been much heavier if the season had been more favourable. As it was there were very few diseased tubers, and the crop compared well with the reputed heaviest cropping older favourites grown against them. No fault can possibly be found with the quality, and *The Gentleman* will be given a trial on a large scale this season.—**I.**

— **BROCKHAM ROSE ASSOCIATION.**—The Rev. Alan Cheales has resigned the acting Honorary Secretaryship, and C. E. Cuthell, Esq., of Chapel Croft, Dorking, has been appointed to this by the Committee, subject to confirmation at general meeting.

— **THE WEATHER IN WARWICKSHIRE.**—During the evenings of the 7th and 8th inst. very heavy falls of snow were experienced, the combined fall of the two nights being 9 inches in depth; 12° and 15° of frost were also registered during the two respective nights.

— **RAINFALL RETURNS.**—Mr. Dawson A. Milward has sent us a return of the rainfall at Laviston, Kilkenny, during 1891, with the totals, amounts, and numbers of wet days in the nine preceding years. We cannot publish tabulated lists, but only digests similar to those of Mr. W. H. Divers, and other correspondents. The rainfall at Laviston during the past year was 31.82 inches, which fell on 178 days. The total has considerably exceeded this in 1882 and 1886, the quantities being 36.38 and 35.69 inches respectively.

— **THE WEATHER LAST MONTH.**—December brought us a great deal of fog. We had thirteen bright sunny days, one of which was clear; but most of them were foggy or dull at 9 A.M. The barometer was very changeable up to the 17th. The wind was in a southerly direction twenty-three days; we had severe frost continuously from the 17th to the 25th. The highest shade temperature was 59° on 6th, the lowest 11° on 22nd; the lowest on the grass 9° on the 22nd; mean daily maximum 45.90°, mean daily minimum 29.87°, mean temperature of the month 37.88°. Total rainfall 2.85 inches, which fell on twenty-one days, the greatest daily fall being 0.55 inch on the 1st. The barometer was highest—30.63—at noon on the 20th, lowest—28.83—at noon on the 13th. The garden spring ran 40 gallons per minute on the 31st.

— **THE WEATHER IN 1891.**—This was a very changeable year, with much cold dull weather, and a rainfall of 1.20 inch above the average of the previous ten years. The total rainfall was 20.07 inches, which fell on 202 days, the greatest daily fall being 1.03 inch, on October 6th. The highest shade temperature was 85°, on September 10th; the lowest 1°, on January 18th, when the thermometer on the outside of the screen stood at 0° for several hours; the lowest on the grass 4°, on January 19th. Mean daily maximum temperature, 55.68°; mean daily minimum, 43.43°; mean temperature of the year, 49.55°. May was remarkable for two very hot days, the 12th and 13th; and very cold after with snow, on 16th, 17th, and 18th. September gave us the best weather of the whole year, from the 6th to the 15th. We had no snow at the end of the year, but much fog and dull weather.—**W. H. DIVERS, Ketton Hall, Stamford.**

— **THE BLACKHEATH AND LEWISHAM HORTICULTURAL SOCIETY.**—The annual meeting of the above Society was held on Monday evening last, at the Institute, Old Road, Lee, when there was a good attendance of members. The President (Mr. John Penn, M.P.) was unable to attend, as was also the respected Treasurer (Mr. M. N. Buttanshaw, Chairman of Committees), owing to an accident. Mr. H. J. Nettleford being elected to the chair, and after a few opening remarks by him, the minutes of the last annual meeting were read and confirmed. The Chairman then called upon the Secretary to read the report and balance-sheet. The attendance of the Committee for 1891 having been read, the scrutineers proceeded to count the votes for the new Committee, the following twenty-four being elected:—Messrs. W. T. Gates, H. J. Jones, Freeman Fox, B. Maller, Tomlinson, Aley, Tholdice, E. Smith, Rhoden, Judge, Reece, Welch, Dobson, Keech, Frollope, Hood, Nunn, Howe, Feely, R. Whyte, Captain C. L. Shaw, Miss Nettlefold Vokes, and Walter Peacock. The following gentlemen were elected as Vice-Presidents:—Rev. S. Bickersteth (Vicar of Lewisham), R. Escombe, Esq., and Dr. H. O. Burton. The announcement that the Dean of Rochester had kindly consented to become a Patron of the Society was received with cheers. The Hon. and Right Rev. the Lord Bishop of Lichfield (the late Vicar of Lewisham) has consented to remain a Vice-President of the Society. Votes of thanks were passed to the President; to Mrs. Penn, for the use of her grounds; to the Treasurer, to the Secretary (Mr. C. Helmer), and his assistant (Mr. A. Helmer), and to the Chairman, and to others. The proceedings were most enthusiastic throughout. Great surprise was evinced at the large amount of the balance (over £27), considering the bad weather at the time of Show, and the small takings at the gate.

— **AT the next three monthly meetings of the Society on the dates named the following papers will be read:—**January 29th, "Orchids, a

General Sketch," by Mr. George Gordon; February 26th, "The Advancement of Gardeners and Gardening," by Mr. Lewis Castle; March 25th, "Gloxinias and Their Culture," by Mr. C. Nunn, gardener to J. Soames, Esq., Maze Hill, Greenwich. The reading of each paper will commence at 8.30 P.M., after which a discussion will take place, in which all present are cordially invited to join. Gardeners are invited to bring rare specimens of plants, flowers, or fruit, in order to make the meetings as interesting as possible.

— **SUMACH AS MANURE.**—A case of fraud came on for trial at the Northampton Assizes recently, from which it appears that two men had devised a rather elaborate scheme for the disposal of this refuse as artificial manure. The opening statement of counsel describes sumach as a worthless article, which tanners were glad to get rid of to anyone willing to take it off their hands, and some large tanners at Bermondsey had been accustomed to pay £200 a year to get the stuff off their premises. One of the men being aware of that fact had some cards printed, which were headed "Smith & Masters, Artificial Manure Manufacturers, Goldsmith Road, Peckham, London." On the card was a list of manures, and among them one called blood and rape manure. On September 30th about 10 tons of this spent sumach was carted to the railway station, one truck load being sent to Blisworth and another to Roade. Some was sold to the amount of £9, but upon examination by a chemist its true nature was discovered, the fraud was exposed, and the men captured.

— **ARALIA SIEBOLDI.**—This fine old plant has long been a familiar object in greenhouses, and its bold aspect is not likely to be forgotten by those who have seen large masses of the plant in the gardens of the milder portions of England and Ireland. It is seen at its best when grown outside, where it develops into a bush from 5 to 6 feet high and as many through, amply supplied with palmate, leathery, deep green, glossy leaves, 12 inches across, on stout petioles of a similar length. It bears in summer numerous large clusters of small creamy white blossoms. In some places, however, *A. Sieboldi* is essentially a greenhouse plant, and with abundant space and liberal treatment it develops into a highly decorative specimen under glass. Where greenhouse space is limited small young specimens are the most useful. These are usually raised from seeds sown in heat, or young plants are obtained by cuttings from the half-ripened stems. Seedlings, however, make the most attractive specimens, but the seeds are not always easy to obtain. When grown from a single stem from 1 to 3 feet in height, and furnished to the ground, few pot plants of such simple requirements are more elegant. Repotting is not a frequent necessity, unless it is desirable to increase the size of a specimen. Root-bound plants are easily kept healthy by the occasional use of weak liquid manure, but the soil should never become soddened nor thoroughly dry. *A. Sieboldi* is an admirable plant for the dwelling house, the thick texture and close surface of the leaves enabling them to withstand the dry air of such situations. Such plants derive fresh strength from out of door exposure during the summer. *A. Sieboldi* is a native of Japan, and was first introduced to Europe in 1858. It is most generally known under the name given here or *A. japonica*, but the botanists now call it *Fatsia japonica*, *Fatsia* being the Japanese name of the plant. There are two distinct varieties of the species—*variegata*, with leaves bearing conspicuous blotches of white; and *aurea*, which has a yellow variegation. —(*The American Garden and Forest.*)

— THE following leaflet is issued with the Royal Horticultural Society's schedule for 1892:—"PROPOSED SCHEME FOR TECHNICAL EDUCATION IN GARDENING AND SPADE INDUSTRY. Attention has lately been directed to the importance of more extended fruit culture, and to the further development of gardening as a means for the better utilisation of the land; and many of the highest authorities on matters agricultural have considered that smaller holdings, more carefully and scientifically treated by spade industry, form the best and likeliest solution of the present land problem in this country. In order to promote these objects in the near future, as well as to improve the education of working gardeners in general, the Worshipful Company of Gardeners, acting in co-operation with the Royal Horticultural Society of Great Britain, propose to establish a British School of Gardening, where lads of from fifteen to eighteen years of age may receive a thoroughly practical training in all the details of their craft, together with such simple elementary scientific instruction as may be sufficient to enable them to take an intelligent interest in, and gain some little real insight into, the manifold operations of Nature with which they will, in their after life, be concerned. The Worshipful Company of

Gardeners proposes to furnish a house at Chiswick (in the immediate neighbourhood of the Royal Horticultural Society's Gardens) for the reception of students, and to appoint fitting persons to act as instructors and lecturers, and to establish classes for the practical teaching of the craft of gardening and spade industry in the Society's Gardens. The cost for a lad living at the School would be about £45 per annum, inclusive of everything except clothing, and for a lad attending the classes only, £10 or £15. To carry out this project an initial sum of £1000 is required, and a further income of £250 will be wanted for three years, after which time the School should become self-supporting. It is proposed to raise the necessary money by subscription, the Worshipful Company of Gardeners heading the list with a donation of £250. Subscriptions for this purpose should be kept quite distinct from those to the R.H.S., and should be made payable to the Rev. W. Wilks, 117, Victoria Street, Westminster, by whom they will be gladly received, and most gratefully acknowledged."

— **THE YORKSHIRE GALA.**—At the annual meeting of the guarantors and life members of the Yorkshire Gala, held under the presidency of the Chairman of the Committee, Sir Joseph Terry, the election of officers. Committee, &c., took place. The Chairman said it was usually the custom to refer to their success at the annual meeting, and it was especially pleasant to do so on that occasion, because he found that last year, owing possibly to the revised management of the Committee by which everyone had something to do, they had obtained the largest profit they had ever had since the commencement of the Gala. They desired to perpetuate the Gala in the same manner as in past years, not only for the enjoyment which it afforded to a large number of people both in the city and in the country, but also on account of the great pleasure it afforded them to distribute the money they received as profit amongst the various charities of the city. According to their desire he had, in company with Alderman Rooke, Councillor Milward, and the Secretary, waited upon the Bootham Asylum authorities, and arranged that the field should be made over to them upon the same conditions as in former years. He also had to announce that the Lord Mayor had consented to become President for the year, and his generosity had not rested there, for, in addition, he had offered to give a donation of £5 to be divided into two prizes of £2 10s. for twelve distinct varieties of Roses, cut blooms, and twelve distinct varieties of Fancy Pansies, all open to amateurs in the City of York, and within a radius of five miles. He proposed the election of the Lord Mayor as President. Mr. Alderman Rooke seconded, and the resolution was unanimously adopted. The Vice-Chairman, Mr. Alderman Rooke, the Treasurer, Mr. Joseph Wilkinson, the Secretary, Mr. Chas. W. Simmons, and the Auditor, Mr. J. Pearson, were also re-elected. The voting for the election of the Committee of Management then took place, with the result that the following were elected:—Messrs. R. Anderson, G. Balmford, J. Blenkin, S. Border, J. Biscoomb, G. Browne, H. Chapman, J. W. Craven, M. Cooper, A. Dunkley, L. Foster, G. Garbutt, T. G. Hodgson, J. J. Hunt, G. Kirby, T. M. Lambert, C. A. Milward, J. Rotherwood, H. Scott, G. Seller, W. S. Sharpe, J. B. Sampson, and J. E. Wilson. The following grants were made for the Gala:—Floral Show, £550; music, £120; balloons, £70; fireworks, £100; entertainments and amusements, £150. Mr. James Backhouse, who had promised a special prize of £5, was elected a life member. The various working Committees were then elected, and the meeting concluded with votes of thanks to the Chairman, Vice-Chairman and Chairmen of the various Committees. A circular sent out to all the life members and guarantors states that the total number of visitors to the Gala from the year of its foundation, 1859, to 1891, inclusive, is 1,103,813, and the total amount paid for floral prizes £15,254 1s., while a total sum of £1447 10s. has been dispensed to the York charities out of the profits.

PRUNING VINES.

THE remarks of "H. S." on page 6, wherein he attempts a criticism of my recent notes on this subject, are somewhat wide of the mark, and that portion which refers to my having advised the retention of shoots 2 feet in length on Black Hamburgs is misleading, for the simple reason that readers who may not have seen my original remarks would form an incorrect opinion of the real facts and the actual conditions under which that practice was advocated. I was at the time dealing with the care of Vines in a very unsatisfactory state, which required a departure from the ordinary methods of pruning to secure a crop the following season. In such instances, even if a promising bud could not be formed within 3 feet from the base of the spur, the cultivator who could not find "room" to train the young shoots must indeed be

totally devoid of the faculty of ingenuity. It is very well to state that good crops of Grapes have been obtained from Vines forty years old when closely pruned and other details of cultivation well carried out, but there are plenty of instances in which gardeners take charge of Vines which are not in a thriving state, and which have to be improved as quickly as possible.

Then, again, my courteous critic says, when speaking of the long spur system, "For large bunches it may be necessary, but I consider for home use, or even for exhibition purposes, medium-sized bunches with large well-coloured berries are much better than large bunches, which are so often small in berry and deficient in colour." Just so; and if "H. S." will read my previous remarks more carefully he will find an anticipated answer to his remarks which I have just quoted. To produce perfect examples of Grapes we must have either young Vines or adopt the long rod or long spur system with certain varieties of Grapes. —H. DUNKIN.



MRS. ROBINSON KING CHRYSANTHEMUM.

ALTHOUGH some people claim to have had this variety in their possession long before Mr. Hotham, they have as yet given us no definite proof of their claim. Perhaps, after all, I know as much about the certificated variety as anyone, for I was the first to draw the raiser's attention to the "good thing" he had in his possession. At that time he called it "Golden Queen," but I at once told him it was very different from Golden Queen of England, and as then he had not that variety it was impossible that it had sported from it.

In all probability it is a sport from Golden Empress of India, but Mr. Hotham continued to exhibit it as Golden Queen until the Judges disqualified him at the Hull Show in November, 1890. It was then that I took the matter up; with the consent and at the request of the raiser arrangements were entered into with Mr. Robert Owen to bring it out this spring. In the meantime plants were sent to Mr. Blair, Mr. G. Hotham (the raiser's brother), and myself, all of us pledging ourselves not to betray the confidence placed in us, but to grow it well and exhibit it wherever we could. This we did, and were successful in obtaining six first-class certificates, including one from the National Chrysanthemum Society, in November last.

What I cannot understand is this: What have those people been doing who claim to have had this variety long before Mr. W. H. Hotham? Where have they exhibited it? what certificates have been awarded them? and to whom have they sold their stock? These are questions that Chrysanthemum growers have a right to ask. Only at one Show (and that was at Hull in 1890) have I seen any blooms anything like Mrs. Robinson King. During the controversy arising out of the disqualification of Mr. Hotham's stand two blooms on another exhibitor's stand were pointed out as being the same as Mr. Hotham's sport, but in the opinion of several good Chrysanthemum growers, also that of myself, the two flowers were much smaller and considerably paler than those of Mr. Hotham's. This year I have not seen any like the true variety, although I have closely scanned hundreds of stands.

In conclusion, allow me to say that I have not the slightest wish to cast any doubt upon anyone. Let everyone speak for himself. My hands are clean. I also know what plants I have are of the true stock. —CHAS. LAWTON, *The Gardens, Welton House, Brough, East Yorkshire.*

ROYAL HORTICULTURAL SOCIETY.

JANUARY 12TH.

THE first meeting of the Committee was well attended by the members, which included several welcome recruits, notably Mr. J. Laing, jun., on the Fruit Committee; Mr. Norman Davis, Mr. F. Bause, and Mr. C. J. Salter on the Floral Committee; Mr. C. J. Lucas and Mr. T. W. Bond on the Orchid Committee. Exhibits, however, were few, and a very small portion of the table space was occupied, though with the severe frost prevailing that morning it was a surprise to find any plants there.

FRUIT COMMITTEE.—Present: Philip Crowley, Esq., in the chair; Dr. Robert Hogg, and Messrs. J. Lee, R. D. Blackmore, Harrison Weir, T. Francis Rivers, J. Cneal, G. Taber, T. J. Saltmarsh, W. Warren, G. Bunyard, A. H. Pearson, W. Bates, G. Wythes, J. Willard, H. Balderson, J. H. Laing, A. Dean, and G. T. Miles.

The chief exhibit before this Committee was a remarkable collection of fruit from Messrs. G. Bunyard & Co., Maidstone, for which a silver Banksian medal was awarded. This comprised 110 dishes of fine Apples and Pears; the fruits large, of good colour, and extremely fresh.

Mr. C. Leach, Albury Park Gardens, Guildford, showed fruits of a seedling Apple named Albury Park Nonesuch, for which an award of merit was granted. It is a large, conical, solid heavy Apple, the eye deep, and the stalk very deeply inserted; the colour yellowish, with a

tinge of red on one side. It was said to have been in cultivation for some years. Mr. Leach also sent three bunches of Grapes, two of Mrs. Pearson, and one of Gros Colman from a Vine grafted on Lady Downe's. Mr. H. Dean, Kingston, showed four dishes of Canadian Apples. Mr. G. Wythes, Syon Gardens, Brentford, sent a seedling Tomato; and Mr. Deverill of Banbury had nine dishes of fine Onions of the Royal Jubilee, Cocoa Nut, Ailsa Craig, and other types, securing a silver Banksian medal.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. G. Paul, H. Herbst, H. B. May, F. Ross, W. C. Leach, C. J. Salter, W. Furze, C. Noble, H. Turner, B. Wynne, J. Fraser, N. Davis, J. T. Bennett-Poë, and G. Gordon.

A beautiful group of Primulas came from Messrs. Cannell & Sons, Swanley, comprising rare, distinct, select varieties, for two of which awards of merit were granted. The others were Swanley Purple, Cannell's Pink, White Perfection, and Swanley Mauve (silver Banksian medal). Mr. W. C. Leach, gardener to the Duke of Northumberland, Albury Park, exhibited fifteen pots and baskets of Lachenalias, bearing abundant spikes of their attractive flowers, and amply proving the utility of such plants for decorative purposes at this time of year (silver Banksian medal). Mr. A. Bishop, Westbury Hall Gardens, Bury St. Edmunds, sent some graceful sprays of Asparagus.

Messrs. J. Veitch & Sons, King's Road, Chelsea, showed specimens of several species of Hamamelis from the open air, their peculiar yellowish flowers attracting much attention; also Daphne mezereum grandiflorum, a very large flowered variety (vote of thanks).

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq., in the chair; Baron Schröder, and Messrs. C. J. Lucas, J. O'Brien, H. M. Pollett, T. W. Bond, J. Douglas, H. Williams, H. Ballantine, F. Sander, E. Hill, S. Courtauld, T. B. Haywood, and Lewis Castle.

Messrs. Sander & Co., St. Albans, had an interesting collection of cut Orchid flowers, comprising some handsome seedling Cypripediums and varieties of the Læcanium type, also some beautiful Lælia anceps varieties. Baron Schröder sent some cut blooms of Cypripediums and Odontoglossums; the Right Hon. Joseph Chamberlain, Highbury, Birmingham, showed Lælia anceps Sanderiana; the Earl of Cork, Frome (gardener, Mr. W. Iggulden), showed a raceme of Vanda Cathcarti with three large and richly coloured flowers, the curious lines being very closely placed and dark (vote of thanks); Mr. T. Crook, Chard, Somerset, sent a box of Orchid flowers; Mr. H. M. Pollett, Fernside, Bickley, had two hybrid Cypripediums, for one of which an award of merit was granted; Messrs. Pitcher & Manda, Hextable, also had two hybrid Cypripediums; and Mr. Norman C. Cookson, Wylam-on-Tyne, sent a new Cypripedium (certificated) and two seedling Calanthes, to be seen again. The following awards were granted, but the official list gave the names of several other plants, which were removed, apparently, for the Scientific Committee.

CERTIFICATED PLANTS.

Cypripedium enfieldense (Mr. H. M. Pollett).—A hybrid from *C. Hookeriæ* and *C. Lawrenceanum*, the flowers of good form and pleasing colour. The dorsal sepal is broad and rounded, tinted with rich purple with dark veins, and a slight white margin. The petals have a greenish centre and a purple margin, the lip being of a polished purple hue (award of merit).

Lælia anceps var. *Ballantiniæ* (G. Douglas, Esq.).—A handsome variety with white sepals, very broad petals tipped with rich crimson, but the lip is quite exceptional, being of the deepest velvety maroon, almost black, with a gold crest and veins in the throat (first-class certificate).

Odontoglossum Rossi albens (Charlesworth, Shuttleworth & Co.).—A distinct variety of a well known Orchid, the sepals with yellowish spots, the petals pure white, as also is the lip (awards of merit).

Cypripedium Calypso Oakwood variety (N. C. Cookson, Esq.).—A cross from *C. Boxalli aratum* and *C. Spicerianum*, a bold, distinct, and effective form. The dorsal sepal broad, white, spotted and streaked with crimson, the central vein very dark and clearly defined. The petals are greenish, and the lip crimson tinted (first-class certificate).

Cypripedium hybridum gigas (C. Ingram, Esq.).—One of the largest flowered hybrids yet obtained. It is the result of a cross between *C. Lawrenceanum* and *C. Harrisianum nigrum*, and shows the characters of both parents. The dorsal sepal is 2½ inches across, very broad and round, veined with dark purplish crimson, edged with white and tipped with green. The petals are broad tinted purple, with a dark central vein, the lip glossy and purplish (award of merit).

Canna Alphonse Bouvier (G. Paul & Son).—A rich scarlet variety, with broad petals and of dwarf habit (award of merit).

Primula sinensis Peach Blossom (Cannell & Sons).—A single variety, with large, flat, deep rose flowers, the leaf round, and the habit good (award of merit).

Primula sinensis Pink Queen (Cannell & Sons).—Another single variety, with large fringed bright pink flowers, one of the Fern-leaf type, of strong free habit (award of merit).

A NEW BERTOLONIA.

THE family of the Melastomaceæ includes many plants with ornamental foliage, but none equals the superbly marked Bertolonias, and it is a source of regret that so few are now seen in gardens. They are to some extent difficult to grow satisfactorily—that is, they require more

attention than the majority of plants in present favour, but that they can be grown well, even in towns, many proofs may be found.

They need a very light compost of equal parts peat, leaf soil free from all woody particles, and sand, well incorporated, and if this is placed in pans good clean drainage must be first supplied liberally. Shallow pots plunged in moss or clean white spar under a bellglass have a pleasing appearance in a stove, and both moisture and temperature can be then easily regulated. Small light frames are sometimes employed when the collection includes a number of plants, but they are not seen to the same advantage in that way.

Bertolonia Adolphe de Rothschild was shown at one of the Royal

half a century to kill empiricism, for the Potato disease was first publicly noticed in this country in August, 1845, and prevailed equally in England, Scotland, and Ireland. Though public notice was first taken of the disease in 1845 through its wide and general prevalence, it was not noted in England in 1844 by Mr. James Barnes and in that year prevailed in its worst form in Canada. In 1842 the disease was observed in St. Helena, and in 1841 Dr. Morren detected it in Belgium; and between 1821 and 1830 the disease seriously injured the Potato crops of Germany. In 1834 the Potato crop in Scotland was a partial failure through "rot," under which disease in Potatoes was known at a remote date.



FIG. 4.—BERTOLONIA ADOLPHE DE ROTHSCHILD.

Horticultural Society's meetings by M. Linden of Brussels early in 1891, when first-class certificates were awarded for it, and for another named Madame Léon Say. In the first (the one figured) the veins and spots are bright rose on a dark green ground, in the other the veins are silver on a very dark base. In both the contrast is well marked. The leaves also are large and of fine shape.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

THE experiments in treating the Potato for the prevention of disease, which have been recorded in the *Journal of Horticulture* from time to time during the past year, prove conclusively that growers are at last having a recourse to science. It certainly has taken them a long time to make up their minds, but prejudices always "die hard." Indeed, it has taken nearly

There were, however, two kinds—namely, "dry rot" and "wet rot," which had regard to the time of year the Potatoes were diseased. In the case of dry rot, which occurred in early summer, the sets either decayed in the ground or produced short, weak, sickly haulms, curled and spotted leaves, small, but apparently sound, tubers. This disease seems to have been identical with "curl," a puzzling disease, as some observers have failed to discover, whilst others have detected a fungus in the diseased plants. Kühn found no trace, but Hallier and Reinke discovered fungi in the interior of the diseased tissues, and both agree that the disease is hereditary, diseased tubers producing diseased plants, and that these plants are not capable of forming tubers. But the "curl" has another form, the plants apparently attacked from "without," and commencing to curl at the edges of the leaves backwards extends to the whole leaf, and gradually back to the stem. There is no fungus in the upper part of the stems, but underground the stems are spotted, and

in the spots the cells are traversed by mycelium. The roots also are diseased, and the tubers produced by plants affected with either form of curl are always diseased, producing growths that are diseased from their first appearance. This fungus has received the name of *Verticillium nigrum*, and is believed to be an imperfectly developed condition of some *Pyrenomyces* fungus of the genus *Nectria*.

Curl, however, must not be confounded with dry rot and wet rot fungi, which Reinke and Berthold found on decaying Potatoes, and are intimately connected. Reinke and Berthold attribute dry rot to *Fusisporium Solani*, *Nectria Solani*, *Verticillium cinnabarinum*, *Chaetomium botryodes*, and *C. crispatum*, and wet rot to *Bacterium navelle* and *Bacillus amylobacter*. These fungi and minute organisms are inseparable from rotting Potatoes, or those weakened by infestation of Potato rot fungus, *Phytophthora infestans*.

Though Curl fungus, *Verticillium nigrum*, must be disconnected with Potato rot, dry and wet rot, in accordance with the present acceptance of those terms, it appears to have been the "dry rot," which, towards the close of the eighteenth century, excited considerable alarm in Scotland and the northern parts of England, where it has prevailed more or less during the last four decades, and especially in 1873. Potato rot was not altogether unknown in the last century, for John Abercrombie, writing in 1788, states, "These (Potato) roots after being housed should be from time to time looked over, and all such as have any tendency to rottenness should be taken out, for such would infest those that are sound, and the infection would soon spread." This may or may not have any connection with the Potato disease of the nineteenth century, but the advice is to the point, and its non-observance has much to do with the prevalence of the Potato disease at the present time, as we shall presently show. But we desire to refer to another fungus, described by Mr. W. G. Smith in "Diseases of Field and Garden Crops" (pp. 15-29)—namely, *Peziza postuma*, which kills Potato plants, withering and drying up the leaves. This fungus produces sclerotia (reproductive bodies), passing the winter unchanged, but growing the following summer from those lying on or under the soil one to three *Pezizæ*, bearing numerous asci, each ascus containing eight smooth oval spores, which are "shot" into the air if at all dry, and these falling on fertile soil—a Potato leaf or stem only need "a soft glow of moisture"—the tiniest dew drop sufficing—to promote germination and the reproduction of the fungus.

These fungi—Curl and *Peziza*—act independently of Potato disease, dry and wet rot, the last two resulting of attacks by *Phytophthora*, or an impaired condition of the tuber tissues resulting of unfavourable climatic or cultural agencies. Dry rot and wet rot fungi consume the starch of the Potato, therefore it is recommended to expose the tubers to air and heat, either that of the sun or artificial, to check decay, drying the substance and saving the starch. That does not render the tubers useable except for manufacture into pork or for conversion into dextrine, and the latter processes practically annihilate the dry rot and wet rot fungi.

No cure is known for curl fungus, but it may be prevented by selecting sound tubers only for seed, and avoiding those from plants which have been worked "within an inch of their lives" to get up stock. All diseased plants should be pulled up and cleared away as soon as noticed. When the crop is dug all the Potato stalks should be collected into heaps and burned. This is equally applicable against *Peziza postuma*, and it is imperative in preventing attacks of *Phytophthora infestans* that all Potato haulms and all rubbish, including all infested tubers, should be collected and burned instead of leaving them about anywhere and everywhere to infest next year's crop.

There remains the most efficient preventive step in respect of all Potato diseases to be taken—namely, trenching or deep ploughing, for fungi require light, air, moisture, warmth, and every essential condition of growth quite as much in their way as the higher plant on which they are parasitic, and the richer the soil in which they grow—that is, a Potato leaf, stem, root, or tuber, the more luxuriant they become. Fungi like good "soil;" indeed, Potato fungi often refuse to grow in a poverty stricken, starved, Potato plant, because it does not afford the necessary amount of food, then converting the substance of the Potato into substance of its own. Fungi live on organic substances, preying on other substances than their own, which they assimilate and inhale oxygen, and give out carbonic dioxide (like animals).

These facts should be remembered and acted upon in preparing ground for Potatoes, never forgetting that none of the inorganic elements, as such, afford a favourable "soil" for Potato fungi, therefore the more of those elements that

strengthen the Potato plant are rendered available in the soil for taking into its system by the roots, the less liable the plant so fortified will be to suffer from the attacks of parasitic fungi, simply because the epidermal tissues are rendered disease-resisting. Surface cultivation is not sufficient. It certainly assures abundance of organic matter, the residuum of the previous crop, weeds, and manure near the surface, and that those on which fungi thrive, both in the soil and within the plant, and gives a flush to the young plant—a soft haulm, succulent leaves—rich in fungi food, with tender epidermal tissues. These the Potato fungus is as ready to take advantage of as the Potato plant was of the rich surface soil.

Fungoid "rests" are situated on or just within the soil. Such only are capable of mischief to the prospective Potato crop. Destroy those "rests" and there cannot be any distribution of "seed"—no sowing, consequently no harvest of Potato fungus. But this must be national, conditional on every cultivator practising repressive measures, for one soverely allotment suffices to infest a field, one infested field a parish, one labour-starved parish a county, and that county the whole country. That is where the Potato fungus begins and ends. It comes invisibly in the spore, it departs invisibly in "fruits." To destroy these "fruits" two expedients have been advocated. 1, Applications of substances to the soil when vacant, as gas lime, 3 to 5 tons per acre, distributed evenly in autumn, left a few weeks, then lightly harrowed in. But there is a difference in gas lime, fresh and old. Fresh gas lime kills everything, stale is little better than gypsum. Sulphate of iron, 2 cwt per acre, has also been recommended for destroying fungi "fruits." Both applications have been found useful in some cases, whilst in others no benefit has accrued from the use of those substances, but that is no proof of the inefficiency of fresh gas lime and sulphate of iron in preventing fungoid diseases, for disinfecting a plot of ground or field will not save the Potato crops grown in those from infection by spores scattered over them from neighbouring infested land or diseased crops. Disinfection must be general if the Potato crops throughout the country are to be disease free. 2, Burying the fungus resting spores by deep digging or deep ploughing, so as to prevent the spores of the fungus being "shot" into the air and broadcasted over the Potato crops. Place the Potato fungus resting spores a spit deep, and they are for ever beyond power for mischief to the Potato crop. True, the spores may escape by cracks in the soil, but the cultivator must prevent that by taking care to have a good tilth on the fungi-infested stratum. But recommending trenching, ridging, and subsoil ploughing is simply entailing needless labour and expense, also impoverishing the soil by deep cultivation. It is certainly worse than useless recommending such procedure to hand-to-mouth cultivators as a panacea for labour-starved gardens and farms. Stirring the surface suits the means, and answers for a time better, I admit, than deep cultivation, particularly in soils that have been given a foundation by draining, trenching, or deep stirring at a previous period, because it saves labour, and is less manure-exacting.

The *Journal of Horticulture* states, December 24th, 1891, "Side by side with the American Apples in the other portion of the market were bushels of English Apples, and the contrast was almost painful." Neglected culture always produces "trash" and disease-stricken produce. Surface "scratching" keeps the soil full of weeds, plague-stricken with grubs, and a hotbed for forcing devastating fungi. Deep cultivation insures the greatest possible amount of assimilable plant food in the soil, and secures steady sustained growth in the plants, so essential to their health and productiveness, and is one of the best possible means of avoiding infestations of fungi and insects. Therefore, drain wet land; aerate sweeten sour soil; ridge-expose stubborn soil to winter frosts. It is one way to avoid the Potato disease by rendering the plants disease-resistant, it is the way to secure the heaviest crops of sound Potatoes.

Then there is the all-important question of manures. Fresh stable or farmyard is the worst possible, because it is not impossible for the spores of fungi to pass through the digestive canal of animals without being killed, and thus inhabit different stable or farmyard manures applied to the Potato ground. Fermentation in the heap destroys many forms of fungi, for strong heat is fatal to those and insects. This is generally acted upon, though some cart the manure direct from the manure yard and place it in the Potato rows at once, planting the Potatoes upon it. This, though buried, is not calculated to insure immunity from disease, because some "rests" may gain access to the air, and by their spores reproduce the fungus. The application of fresh manure in autumn is little less infectious, yet there is a chance of the "resting" spores getting

buried or washed away. No objection can be made to fermented manure, provided it is not used in excessive quantities, when the plants are made gross by its use. There is danger in that, therefore some have recourse to artificials, and Potatoes require potash, nitrogen, and phosphates, but the Potato fungus runs riot in crops having too much of the first two, and the land is found to be greatly benefited by dressing with sulphates of magnesia, sodium, and iron. The magnesia and soda sulphates are present in kainit, and mineral superphosphates are considered preferable. Sulphates certainly act inimically on fungi; in fact, they cannot contend with sulphur active within the host plant, not even sulphate of ammonia, and sodium sulphate strengthens the haulm against the fungus; whilst iron sulphate purges the soil and plants, so as to render the fungus in no wise dangerous. Mineral superphosphates, 2 cwt.; kainit, 1 cwt.; nitrate of soda, 1 cwt.; iron sulphate $\frac{1}{2}$ cwt. mixed per acre, is recommended by Dr. Griffiths specially for Potatoes, stating ("Manures and Their Uses," page 150) that "By using iron sulphate there is little danger of the crops being attacked by Peronospora (Phytophthora) infestans." Others recommend superphosphate, 3 cwt.; sulphate of ammonia, 1 cwt.; kainit, 2 cwt. mixed per acre; whilst some others use superphosphate, 3 cwt.; sulphate of ammonia, 1 cwt.; kainit, 1 cwt.; and sulphate of sodium, 1 cwt. mixed per acre. These are sound dressings, available for distributing at the time of "setting," and in some respects efficient in securing the Potato crop against the scourge.

But the cultivation of the Potato renders it an easy prey to fungus—all cultivated plants are more liable to attack by fungi than wild plants, and prevention is the thing to aim at. The essential conditions have been briefly glanced at, and they must be observed—that is, the soil must be well drained, it must be well worked, aerated, sweetened; the plants have a free circulation of air, thus promoting evaporation so as to insure the thorough solidification of its growths and prevent that accumulation of moisture, warmth, and confined air about the plants so inimical to the Potato, but fostering to the Potato fungus spores, and so provocative of their germination, and promotion of the exuberant growth of the fungus.

Then the tuber sets must be sound, rejecting any that show a trace of disease, and so far as practicable planted whole. Cut Potatoes should be rubbed in quicklime to scar or coat over the cuts, and every possible precaution taken against infection. Despite all efforts the Potato disease will come as certainly as the seasons, but it always falls with less severity where the ground is thoroughly worked and means are adopted to prevent the spread of the disease. Disease-resisting varieties should be encouraged, for some are much hardier than others, and it is always the weaklings—those having the least stamina and the most tender skins—that by non-resistance fall before the Potato fungus—G. ABBEY.

(To be continued.)

THE ROYAL HORTICULTURAL SOCIETY.

THE COMMITTEES.

THE chief arrangements of the above named Society for 1892 have already been announced. They are now issued in a schedule of 116 pages, which gives a variety of information with respect to the Society's work, a list of the Fellows, the affiliated Societies, and the members of the several Committees. The names of the latter are as follows:—

SCIENTIFIC COMMITTEE.

Chairman.—Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., The Camp, Sunningdale.

Vice-Chairmen.—Dyer, W. T. Thistleton, C.M.G., F.R.S., Royal Gardens, Kew; Foster, Professor M., Sec. R.S., Great Shelford, Cambridge; Masters, Maxwell T., M.D., F.R.S., V.P.L.S., Mount Avenue, Ealing, W.

Hon. Secretary.—Rev. Professor G. Henslow, M.A., F.L.S., F.G.S., Drayton House, Ealing, W.

Baker, J. G., F.R.S., Royal Gardens, Kew.

Blandford, W. H. F., M.A., F.E.S., 48, Wimpole Street, W.

Bonavia, Dr. E., 5, Harrington Mansions, South Kensington.

Burbidge, F. W., F.L.S., Trinity College Gardens, Dublin.

Church, Professor A. H., F.R.S., Shelsley, Richmond.

Clarke, Colonel R. Trevor, Welton Place, Darent.

Darwin, Francis, F.R.S., Wyehfield, Huntingdon Road, Cambridge.

Dod, Rev. C. Wolley, Elge Hall, Malpas, Cheshire.

Elwes, H. J., F.L.S., F.Z.S., Colesborne, Andoversford, Gloucestershire.

Frankland, E., F.R.S., The Yews, Reigate Hill, Reigate.

Gardiner, W., F.R.S., Clare College, Cambridge.

Gilbert, J. H., Ph.D., F.R.S., Harpenden, Herts.

Godman, F. DuCane, F.R.S., 10, Chandos Street, Cavendish Square, W.

Green, Professor J. R., M.A., 17, Blomsbury Square, W.C.

Lindsay, R., Botanic Gardens, Edinburgh.

Llewelyn, Sir J. T. Bart., F.L.S., Penllergare, Swansea.

Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.

McLachlan, R., F.R.S., West View, Clarendon Road, Lewisham, S.E.

Michael, Albert D., F.L.S., Cadogan Mansions, Sloane Square, S.W.

Morris, D., M.A., F.L.S., 11, Kew Gardens Road, Kew.

Müller, Hugo, Ph.D., F.R.S., 13, Park Square East, Regent's Park, N.W.

Oliver, F. W., D.Sc., F.L.S., 10, Kew Gardens Road, Kew.

Pascoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.

Plowright, C. B., F.L.S., 7, King Street, Kings Lynn.

Russell, Dr. W. J., F.R.S., 34, Upper Hamilton Terrace, N.W.

Salvin, Osbert, F.R.S., Hawksfold, Fernhurst, Haslemere.

Scott, D. H., Ph.D., F.L.S., The Laurels, Bickley, Kent.

Symons, G. J., F.R.S., 62, Camden Square, N.W.

Veitch, H. J., F.L.S., Royal Exotic Nursery, King's Road, Chelsea, S.W.

Ward, Professor Marshall, F.R.S., The Laurels, Englefield Green, Staines.

Weiss, F. Ernest, B.Sc., F.L.S., Birchbank, Christchurch Road, Hampstead.

Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

FRUIT AND VEGETABLE COMMITTEE.

Chairman.—Crowley, Philip, F.L.S., Wadlon House, by Croydon.

Vice-Chairmen.—T. Francis Rivers, Sawbridgeworth; John Lee, 78, Warwick Gardens, Kensington; R. D. Blackmore, Teddington.

Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Balderson, H., Corner Hall, Hemel Hempstead.

Bates, W., Poulett Lodge Gardens, Twickenham.

Bennett, W., Rangemore Park Gardens, Burton-on-Trent.

Bunyard, George, The Nurseries, Maidstone.

Cheal, J., Crawley, Sussex.

Cliffe, G., Shoreham Place Gardens, Sevenoaks.

Coleman, W., Eastnor Castle Gardens, Ledbury.

Cummins, G. W., The Grange Gardens, Wallington.

Dean, A., Bedford, Feltham.

Divers, W. H., Ketton Hall Gardens, Stamford.

Dunn, Malcolm, The Palace Gardens, Dalkeith, N.B.

Fairgrieve, P. W., The Palace Gardens, Dunkeld, N.B.

Ford, Sidney, Cowfold, Horsham.

Hogg, R., LL.D., F.L.S., 99, St. George's Road, Pimlico.

Hammond, G., Pilgrims Hatch, Brentwood.

Hudson, J., Gunnersbury House, Acton.

Laing, J., Jun., Forest Hill, S.E.

Lanc, Fred., Berkhamstead.

McIndoe, James, Hutton Hall Gardens, Guisborough.

Miles, G. T., Wycomb Abbey, High Wycomb.

Moss, A., 39, King William Street, E.C.

Norman, G., Hatfield House Gardens, Hatfield.

Pearson, A. H., The Nurseries, Chilwell, Notts.

Reynolds, G., The Gardens, Gunnersbury Park, Acton.

Ross, Charles, The Gardens, Welford Park, Newbury.

Saltmarsh, T. J., The Nurseries, Chelmsford.

Smith, James, The Gardens, Mentmore, Leighton Buzzard.

Sutton, A. W., F.L.S., Reading.

Taber, G., Rivenhall, Witham, Essex.

Veitch, P. C. M., The Royal Nurseries, Exeter.

Warren, W., Worton Gardens, Isleworth.

Weir, Harrison, Sevenoaks.

Willard, Jesse, Holly Lodge Gardens, Highgate, N.

Woodward, G., Baham Court, Teston, Maidstone.

Wright, John, 171, Fleet Street.

Wythes, G., Syon House Gardens, Brentford.

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Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Bain, W., The Gardens, Burford Lodge, Dorking.

Baines, Thomas, Fern Cottage, Palmer's Green, N.

Bause, F., Portland Road, South Norwood, S.E.

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Girdlestone, T. W., Sunningdale, Berks.

Gordon, G., Endsleigh, Priory Park, Kew.

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Jeffries, C., Boston House Gardens, Brentford.

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Lowe, R. B., Ashbridge Gardens, Berkhamstead.

May, H. B., Dyson's Lane, Upper Edmonton.

Mawley, E., Rosebank, Berkhamstead.

Nicholson, G., Royal Gardens, Kew.
 Noble, C., Sunningdale Nursery, Bagshot.
 Owen, R., Castle Hill, Maidenhead.
 Pearson, C. E., Chilwell, Nottingham.
 Peerless, G. R., Park Hill House, Clapham.
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 Ross, F., Pendell Court Gardens, Bletchingley.
 Salter, C. J., Woodhatch Gardens, Reigate.
 Turner, H., Royal Nurseries, Slough.
 Walker, J., Ham Common, Surrey.
 Watson, W., Royal Gardens, Kew.
 Williams, W. H., (Keynes & Co.), Salisbury.
 Wynne, B., 1, Clement's Inn, Strand, W.C.

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Ballantine, H., The Dell Gardens, Staines.
 Bond, T. W., Elstead House Gardens, Godalming.
 Burbidge, F. W., Trinity College Botanic Garden, Dublin.
 Castle, Lewis, Hotham House, Merton.
 Crawshay, De Barri, Rosefield, Sevenoaks.
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 Lindsay, R., Botanic Gardens, Edinburgh.
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 Lucas, C. J., Warnham Court, Horsham.
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 Perry, Amos J., Stamford Road, Page Green, Tottenham.
 Vilmorin, Henry L. De, Quai de la Mégisserie, Paris.
 Walker, James, Ham Common, Surrey.
 Ware, Walter T., Inglescombe Nurseries, near Bath.
 Webster, A. D., F.B.S.E., Hollydale, Keston, Kent.
 White, Miss, Alexandra College, Dublin.

OUTLINE OF THE HISTORY OF COMMERCIAL FERTILISERS.

(Continued from page 9.)

ACID-FORMING ELEMENTS AND METALS.

10, Of the fourteen elements which are found in plants, some are spoken of as non-metallic elements or acid-forming elements, because, in certain combinations these elements form well-known acids. The other elements are known as metallic elements or metals.

ACID-FORMING ELEMENTS.

Carbon.
 Hydrogen.
 Oxygen.
 Nitrogen.
 Phosphorus.
 Sulphur.
 Chlorine.
 Silicon.

METALS.

Calcium.
 Potassium.
 Sodium.
 Iron.
 Magnesium.
 Manganese.

ACIDS AND SALTS.

11, An acid is a compound containing an acid-forming element combined with hydrogen and oxygen, or, in some cases, with hydrogen alone. The following examples will serve to illustrate:—

Nitrogen, hydrogen, and oxygen form nitric acid; phosphorus, hydrogen and oxygen form phosphoric acid; sulphur, hydrogen and oxygen form sulphuric acid; chlorine and hydrogen form hydrochloric acid. The common name of sulphuric acid is oil of vitriol, the common name of hydrochloric acid is muriatic acid.

12, A salt is a compound formed by putting a metal in the place of the hydrogen of an acid; that is, an acid differs from a salt simply in having a metal where the acid has hydrogen. Every acid has a salt corresponding to it. For example, as stated above, nitric acid consists of nitrogen, hydrogen and oxygen. Now, if we put the metal potassium in the place of hydrogen, we have a compound containing nitrogen, potassium (in place of hydrogen) and oxygen. This compound is the potassium salt of nitric acid, and is called potassium nitrate, or, sometimes, nitrate of potash. Again, phosphoric acid consists of phosphorus, hydrogen, and oxygen; in place of hydrogen put one of the metals, as calcium, and we have a compound containing phosphorus, calcium (in place of hydrogen) and oxygen, which is the calcium salt of phosphoric acid, and is called calcium phosphate, or, sometimes, phosphate of lime. Similarly, if a metal, as magnesium, is put in the place of the hydrogen of sulphuric acid, we have the magnesium salt of sulphuric acid, or magnesium sulphate familiar to us as Epsom salt. If in hydrochloric (muriatic) acid we put some metal (as sodium) in place of the hydrogen, we have a compound consisting of sodium and chlorine, which is the sodium salt of hydrochloric acid, and is called sodium chloride, sometimes muriate of soda, familiar to us as common salt.

The word "salt" as used in chemistry, applies to a great number of compounds, and many of the substances we have to deal with in speaking of fertilisers are chemical salts, that is, substances formed by putting some metal in place of the hydrogen of some acid.

CARBON.

13, IMPORTANCE OF CARBON.—The element, carbon, may be called the central element of all animal and vegetable substances; for there is not a living thing, from the smallest cell to the giant tree, which does not contain carbon as a necessary constituent. That all vegetable and animal substances contain carbon can easily be shown by simply heating them sufficiently, and thus causing them to blacken or char. When, for example, wood is heated, the different elements of which it is composed are driven off in one form or another, but the carbon is the last to go, and remains behind as a black substance or charcoal, unless heated higher, when it disappears or burns up.

14, OCCURRENCE OF CARBON IN NATURE.—Carbon usually occurs in nature united into compounds with other elements. Thus, most products of plant life contain carbon combined with the elements hydrogen and oxygen; such as starch, sugar, and cellulose or woody fibre. Carbon, combined with oxygen, occurs in the air in the form of carbon dioxide, commonly called carbonic acid gas. Carbon, when combined with oxygen and some element such as calcium, occurs in the form of carbonates; for example, marble, limestone and chalk are chemically known as calcium carbonate or carbonate of lime.

Carbon by itself or in the free condition, that is, not united with any other elements, is familiar to us in several different forms; the most common of these forms are (1) diamonds; (2) graphite, which is used in the manufacture of lead pencils; (3) ordinary wood charcoal; (4) lampblack; (5) animal charcoal; (6) mineral coal. Excepting diamonds these forms of carbon are more or less impure, containing some other things mixed with the carbon.

15, It is pertinent to make here the inquiry "What is the relation of carbon to fertilisers?" Before we can answer this question satisfactorily we must know what is meant by a fertiliser and what must be regarded as necessary constituents of a fertiliser. We will, therefore, turn aside from our consideration of the element carbon and take the opportunity, at this stage, to give some definitions of general and special terms which we shall have occasion to use more or less frequently.

16, FERTILISER.—As ordinarily spoken of, a fertiliser may be defined as any substance which, by its addition to the soil, is intended to produce a better growth of plants.

of the stems being inserted in bottles of water secured in an inclined position, so as to admit of the fruit hanging clear of the bottles. Some put a piece of charcoal in each bottle to keep the water sweet. Any dry room will be a suitable place where an equable temperature of 40° to 45° is maintained. Cutting the Grapes admits of the Vines being pruned, the house cleansed, and the rest is very advantageous to the Vines, the house being kept cool and dry.

PEACHES AND NECTARINES.—Earliest House.—The chief thing to aim at is the fertilisation of the flowers, which, having developed in a comparatively genial and well ventilated atmosphere, have opened well and are well furnished with pollen. Raise the temperature to 50°, if it has been lower through the night, as soon as possible after daybreak, and maintain it at that figure during the day by artificial means, putting on a little air so as to induce a circulation without causing a draught. Maintain a genial condition of the atmosphere by damping the paths and borders in the morning and early in the afternoon of fine days. By ventilating early with a suitable temperature the trees are kept in steady progress, the blossoms become perfect, and fertilisation is readily effected. The pollen can be distributed by means of a camel-hair brush, feather, plume of Pampas grass, or shaking the trellis. Varieties deficient in pollen should have some applied from others. The night temperature must now be 50° to 55° in mild weather, permitting a fall of 5° through the night in severe weather, 55° by day from fire heat, advancing to 65° from sun heat. Increase the ventilation freely above 55°, but not so as to lower the temperature, and close at 65°, a few degrees advance from sun heat being beneficial.

Disbudding must not be done hurriedly, but any strong shoots of the previous year having a tendency to push growth in advance of the others may be commenced with first, removing the growths on the upper side of the shoots, and then reducing the side shoots to the number required, namely, one from or near the base as possible for to supplant that now fruiting, and another or more above or on a level with the fruit, and which should be pinched at a few inches of growth, or if the shoot be an extension leave growths at about every 15 or 18 inches to form the bearing shoots of next season, continuing those with the leader intact. Disbudding, however, should be commenced before the shoots are an inch long, and be continued at short intervals until no more shoots are left than will be necessary for furnishing the wood of the ensuing season's bearing. Afford due supplies of water to inside borders, and protect the roots outside with dry material. After the fruits are set an occasional syringing will assist the trees to cast the remains of the blossoms, yet avoid heavy syringings, which have a tendency to weaken the growths.

Second Early House.—The house to afford ripe fruit early in June must now be started, employing fire heat only to maintain a day temperature of 50°, raising it early to insure the development of the blossom with light and its due airing, increasing the ventilation at 55°, avoiding cold currents, and allowing an advance of 5° to 10° from sun heat and corresponding ventilation. A night temperature of 40° to 45° is sufficient until the blossoms are well advanced for expansion, when it should be gradually raised to 50°. Syringe the trees in fine weather in the morning and early afternoon until the flowers show the anthers, when damping the borders and paths will be sufficient, admitting a little air constantly, with a gentle warmth in the pipes. When the pollen becomes ripe artificial fertilisation may be resorted to. If water is wanted give a thorough supply, affording liquid manure in a tepid state to weakly trees. Where the blossom buds are superabundant remove those on the under side of the trellis.

Succession Houses.—These should be kept as cool as possible by free ventilation. The house to be started early in February should now be closed, furnishing full supplies of water to the borders, merely excluding frost, and ventilating fully above 50°. Push forward the pruning and dressing of the trees in late succession houses, thoroughly cleansing them, securing the trees to the trellis, ventilating and keeping them as cool as possible. If necessary give a supply of water at the roots.

THE KITCHEN GARDEN.

KIDNEY BEANS.—The value of a constant supply of these or even occasional dishes only cannot well be over estimated, and they are particularly desirable during the spring months. Shelves, walls, and front stages in forcing houses generally are the best positions for them, plenty of heat, light, and moisture being the principal factors in success. At least three batches of from twenty-five to forty 9-inch pots or according to the demands and resources of the establishment, have to be found room at one time when once the forcing has commenced in good earnest, fortnightly intervals separating the different sowings. Drain and then fill the pots three parts full with moderately rich and not too heavy loamy compost, and sow about a dozen new seeds in each, covering with nearly 2 inches of fine soil. In order to hasten germination set the pots direct on the hot-water pipes or troughs, and before the seedlings become leggy transfer to the walls or shelves. Reduce the number of plants to about seven in each pot, and lightly support with birch spray or stakes and strips of raffia before they break down. Water sparingly at first, and when the pots are well filled give more water and liquid manure frequently. Syringe freely on bright days, or otherwise red spider may gain an ascendancy. Avoid crowding the plants, and gather the pods before they get old and tough. Sion House, Osborn's Forcing, and Ne Plus Ultra are all suitable varieties for early forcing, the last-named being perhaps the most profitable of the three.

TOMATOES.—No plants having been kept through the winter and

early fruit being desired no time should be lost in raising a batch of seedlings. A good stock of Large Red is perhaps the best that can be sown, Dwarf Orangefield being another free setting variety, and a good quality when ripe, but any other selected varieties may also be sown and grown with every prospect of success. Sow the seed thinly in 6-inch pots well drained and filled with fine light soil, and plunge in mild hotbed. To prevent the seedlings from becoming leggy and weak raise them well up to the glass and thin out early. Not till they are strong and furnished with leaves other than seed leaves should they be potted off. Placing them singly in small pots is not the best step that can be taken, much better plants being obtained with less trouble by placing the seedlings direct into 5-inch pots, or in pairs in 6-inch pots. Use light loamy compost previously warmed, and sink the seedlings well up to the seed leaves. Given the benefit of a little extra warmth and shade, and being also very sparingly watered the plants soon commence growing strongly, and should then be kept near the glass in a fairly brisk heat till the fruiting quarters are ready for their reception.

CAULIFLOWERS.—Any wintered in frames should be ventilated freely whenever the weather is mild, as they ought not to make much growth before being finally planted out. If there are many failures in the handlights, and those in frames are not sufficiently strong to make good the blanks, pot them singly into 3-inch pots, keep them near the glass in pits or in cool houses, and transfer to the handlights directly the pots are well filled with roots. This plan of preparing the plants is also advisable where there are no handlights, the earliest crops being obtained with the aid of rough pits and warm positions at the foot of south walls. Supposing no plants have been kept through the winter, and they are somewhat scarce, seed of the Early Forcing, and either Early London or Erfurt Mammoth, should be sown in pans or boxes at once. It will germinate quickly in gentle heat, and soon after the seedlings are up they ought to be raised well up to the glass, care being taken not to break them down by syringing recklessly. Thin out early if at all crowded, and when in rough leaf transfer them to a greenhouse or to shelves in moderately cool houses. This will strengthen and prepare them for potting off. They move better out of small pots than they do from boxes, especially if not left too long in the former. When they are sufficiently strong, therefore, place either a single plant in a 2½-inch, or a pair in 3-inch, or rather larger pots, using a good loamy soil. Grown without experiencing a severe check (this latter would cause premature buttoning) early and fine hearts could be had nearly as quickly as any might be produced by autumn-raised plants, the little Early Forcing being exceptionally precocious.

EARLY LETTUCES.—Since the introduction of the extra quick growing Cabbage varieties there has been less need to take so many pains in raising and wintering a number of plants to give an early supply of hearts. Both Early Paris Market and Veitch's Golden Queen are of exceptionally quick growth, and are second to none in point of quality. Sow seed at once, and treat very much as advised in the case of early Cauliflowers. Especially ought thick sowing to be avoided. Crowded seedlings either damping off badly or quickly become worthless. There is, however, no necessity to pot the plants, in fact they move better out of boxes, and ought to be early pricked out in these accordingly. Duly hardened and planted out on warm borders they form hearts very quickly, but where frames or the room can be spared a few score ought to be gently forced. Shallow frames on a mild hotbed are the best positions for them, but a moderately good supply might be had with the aid of boxes, these being located in a light position in a newly started vinery or Peach house.

CARROTS AND RADISHES.—Tender young roots of either Horn Carrots or Radishes are always acceptable, and an early start should be made in forcing them. What is needed is a mild hotbed not less than 3 feet deep, and formed, if possible, of a mixture of leaves and prepared or not very fresh stable manure, this giving a fairly brisk and lasting heat. On this place a shallow frame, half filling this with short manure, and fill up with light and fine soil, a depth of 5 inches or 6 inches of this being ample. Open shallow drills 8 inches apart for the Carrot seed, and midway between these other drills for the Radishes. Gently moisten the drills if the soil is at all dry, sow the seed thinly, and cover with sifted soil. Keep close and dark till the Radishes are up, after which give all the light possible, also ventilating slightly, taking care to make all snug and close every evening. French Forcing and Nantes Horn are good forcing Carrots, while the best Radishes for present sowing are the Extra Early, Scarlet and White, Forcing Turnip, French Breakfast, and Wood's Early Frame.

PLANT HOUSES.

Gloxinias.—Where these are rested in warm houses and moisture is abundant the plants soon start again into growth, especially if water moistens the old soil in which they have been stored. The stock should be examined, and those that have started may be encouraged to grow by placing the tubers in boxes or pans filled with leaf mould or cocoa-nut fibre refuse until they have well started, when they may be potted singly. Those started some time ago will be ready for potting singly. Large tubers may be at once placed in the pots in which the plants are to flower. If the shoots that spring up are numerous the weakest may be removed and rooted singly in small pots if the kinds are good. These plants will do where the temperature ranges at night 60°. Where hotbeds have been made up seed may be sown if an increase of stock is needed. By sowing early good flowering plants are produced early in the season. Where plenty of tubers of good

kinds already exist seed sown in April and May will result in plants for flowering late in the year.

Tuberous Begonias.—The earliest plants rested may be started into growth, for these are useful plants for the conservatory as early in the season as they can be produced. It is a good plan to shake away the whole of the old soil and wash the tubers in warm water. We have found that where tubers have commenced decay in any part the decaying portion is frequently swarming with a kind of mite. Any decaying portion should be carefully cut away, and after washing dusted with powdered charcoal; they frequently do well afterwards. Decay of the tubers is often brought about by ripening them too rapidly. The tubers should be allowed to dry after being washed, and then placed amongst leaf mould and sand in boxes and placed in heat. They start freely and quickly if the boxes are placed on hotbeds. Seed may be sown on the surface of pots or pans which has been made smooth and even; the seed should be gently watered, not covered with soil. The pans may be covered with a square of glass until germination takes place. If possible place the pans in the propagating box or under bell-glasses to prevent the soil drying until the seed has germinated.

Achimenes.—Remove the underground roots of these useful decorative plants, and place them thickly together in pans that are liberally drained and filled with light but rich soil. If the soil is in an intermediate state of moisture give them no water. None will be needed until they commence growing if the pans are plunged and the surface covered with cocoa-nut fibre refuse. The forcing house is a convenient place to start these plants into growth.

THE BEE-KEEPER.

MR. T. W. COWAN'S INACCURACIES.

WE have been asked by Mr. Thomas William Cowan to correct some inaccuracies which have appeared in this Journal, and in view of certain eventualities Mr. Cowan has also intimated his intention to publish certain correspondence in his papers. It is immaterial to us what he publishes, so long as he refrains from libellous statements. There was a misprint on the page mentioned below of 21st instead of 23rd, but we select as by far the most important of the inaccuracies the following, which were supplied to us for publication by Mr. Cowan, and we accepted them in the belief that they were correct.

In the statement published by us on November 19th there were four facts asserted, viz.—1st, that Punic bees had never been alluded to in the *Record* by any correspondent; 2nd, or editorially; 3rd, Mr. Carr had never written about Punic bees; and 4th, Mr. Carr never had a stock of Punic bees.

These are the statements alluded to above as having been supplied by Mr. Cowan, who insisted on their insertion in our columns. The first three he now admits to have been incorrect in his "explanation" on page 571 of our issue of 31st December, 1891; and as regards the fourth, we may say for the information of Mr. Cowan and our readers that we have evidence that proves beyond a doubt to our mind that Mr. W. B. Carr did have a stock of bees from a Punic queen in 1889-1890. We have asked "A. H. B. K." to allow us to publish some evidence that we believe he can supply, but he informs us that he is taking action against Messrs. Cowan and Carr for libel, and that it would be best to produce the evidence in Court, along with the other evidence.

APIARIAN NOTES.

THE SELF HIVER.

(Continued from page 572, last vol.).

ONE of my devices for preventing swarms joining consists of a shallow race about an inch deep and the width of the inside of the hive, and about 2 feet long. This is the length of my own. The bottom, 2 feet by 1 foot 2 inches wide. It should be thin, or bevelled at the bottom, so that when put close to the entrance of the hive it does not obstruct the doorway or egress of the bees. A piece of wood, inch deep by five-eighths thick, is nailed on the two sides and one end of this, and 10 inches of the end that goes next the hive is covered with three-eighths or one-quarter boards, which leaves the further end from the hive open. This should be fitted to the front of the hive so that not a bee can escape, while a brass screw should go right down into the alighting board in a way

that it can be turned fast in a second to prevent it slipping from the front.

A light square frame 1 inch by $\frac{1}{2}$ inch forms the under part of the interceptor, which is a bag of open texture sewed to the frame, and about a foot high. A light but stiffish brass wire of the same size as the under frame is employed to fasten the crown and sides of the bag to. Right across the centre of the crown and down the sides a little there is sewn a piece of stout doubled calico, and in the centre of this a handle of tape all firmly sewn. A clip of brass is fastened with two screws to the bottom of the under frame first mentioned, and has a hole drilled in the upper edge, so that it goes right in the centre of the edge of the frame that forms the bag to receive a brass pin fixed to the frame, and which secures the receiver or interceptor of the swarm in a second. A small gibbet completes the whole affair to hold the bag up or distended, and is kept in its place by four pieces of thin brass, two upon its under end and two upon the race, so that in fixing it is simply slid in. When the bees are secured in the bag, the only place they can get to, remove the old stock and set the new hive in its place, then lift the bag by the tape handle and place it on the top, the hive to be tenanted, and let go your hold of the bag, and the bees by the light but constant pressure and falling down of the bag the bees will retreat unharmed to their permanent hive as they do in the top hiver lately described, of which the foregoing is a modification.

In all cases of swarming, whether naturally or by any artificial means, the bee-keeper should satisfy himself that the swarm is a full one, and if not, at the earliest possible moment bees should be taken from the stock hive to make it up, and the latter removed a long distance to prevent the bees of the swarm going back to their old home. In some manipulations I have seen the bees of the swarm ferret out the old stock 70 yards removed. I had at the beginning intended to have shown the evils accruing from self hivers, but will reserve until another occasion, when the pages of the Journal are less crowded with valuable matter.

THE FLIGHT AND SPEED OF BEES.

I do not remember ever seeing any article upon the flight and speed of bees till the other day a question came by post asking what I thought of a clipping from a daily paper quoted from a work on bees. I have replied to the query, but as it is a subject of interest to bee-keepers I enlarge more fully upon it here. The whole of the quotation is amusing and inaccurate. It says "that the insect can draw twenty times its own weight, can fly more than four miles an hour." It would be amusing indeed to see a bee drawing twenty other bees in a way as the general public understands, unless it was drawing them down. Fasten a bee to twenty times its own weight, it will make little if any progress, not so much as some smaller creatures. The speed bees fly varies with their intention from thirty to, perhaps, 200 miles an hour. The slowest speed is when they fly to and from the flowers when they yield honey. They will fly to the field of flowers at a rate or uniform speed of at least 150 miles per hour, the return journey varying from fifty to a hundred, which depends upon the distance, and including the time taken to rest, creates the loss of time, and reduces the timed speed.

During the summer of 1890, when the bees were let loose at the moors, they went and returned a distance of two miles, flying with their load of Thyme honey against the wind in less than fifteen minutes. The bees did not require to fly that distance, but they did so, and were observed several minutes after they were let loose. During the past summer, when the bees were anxious to gather honey in the height of the bloom of the Heather, they ventured out one day, but only a few yards, a low, heavy, cloud prevented their venturing further. Myriads of them disported themselves below the cloud, and spectators, of whom I was one, watched them. Their movements were rapid and described circles from 12 to 30 yards, and showed to great advantage against the cloud. These movements were interesting

to us, and we calculated they would not be less than 200 miles per hour.

When bees are swarming they (the adults) fly rapidly, but from their circular flights do not make much progress, and I have frequently witnessed swarms flying continually for an hour or more without alighting, and not flying further than from 50 to 100 yards distant. Queens when young fly at a great speed, and so do drones.

The same quotation refers to the voice of the bee how it is produced, and why; but no real student of the bee and the sound it makes will accept what is therein stated. The truth is, most of the sounds bees produce are involuntary. The cheerful hum of the hive, which it is said "glorifies the egg-layings of the queen," is neither more nor less than the constant unison of the bees to keep up a uniform degree of temperature. All the other sounds produced arise from special circumstances. It is the speed without progress in its flight and when they are empty that produces the buzz of the angry bee, and the sorrowful sounds at the loss of their queen by their irregularity. The hum of contentment because they are full, the beating of their wings acting differently upon the spiracles than they do upon them when the stomach is empty. The b-r-r-r sound is produced by the drones, and not by the bees; but how it is produced, whether by accident owing to their position upon the floor of the hive, as the sound only occurs when the drones are driven there, I am not prepared to say. At one time I fancied the peculiar sound to arise from the collected number of drones causing the air to pass through a narrow channel and impinge upon the spiracles of the drone or some hollow in the hive as on a key. The young bees' soft, pleasing, and pleased sound arises from the softness of their wings and body.

I was probably the first to discover how the queens piped, by lying flat upon the comb clutching it with their mandibles, but appearing motionless when they uttered their well known note, which is not always alike, and applies to the imprisoned queens; for no queen utters the piping until they are some time matured, and very often the piping goes on when no queen is out of the cell.—A LANARKSHIRE BEE-KEEPER.



*. All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Planting Figs (Inquirer).—Your letter shall have our attention, and a reply will be given in time to be of service.

Retinosporas (S. E.).—This variation in growth is frequent in the Retinosporas, which are of a very sportive and variable character. It occurs also in the species of Cupressus, to which the Retinosporas are referred to by some writers. Two forms of growth are also noted in the Junipers.

Eucharises Unhealthy (J. W.).—If you will describe the treatment to which the plants have been subjected in regard to soil, potting, watering, and temperature, we shall be in a better position to advise you on the subject than we can possibly be without any data to guide us.

Bone Dust and Shavings (W. J. G.).—The material which you refer to from a factory in which tooth brushes are chiefly made, and the "dust dry and clean," doubtless possesses distinct manurial properties. It would be good for fruit trees and mixing in the soil generally, and though not quick in action is more lasting in effect than are many kinds of fertilisers. It is always easy to stimulate growth if needed by light top-dressings of nitrate of soda in spring. This and the bone dust would benefit all crops needing more support than the soil affords. The exact commercial value of the refuse can only be determined by an analytical chemist. If experienced cultivators give the price you name, you will probably not err in following their example.

Benthamia fragifera (S. B. T.).—The tree to which you refer is a native of Japan and Nepaul, and was discovered by Dr. Wallich. It produces yellowish flowers and large red orange coloured fruits, which are



FIG. 5.—BENTHAMIA FRAGIFERA.

very attractive, of the size and shape represented in the woodcut, fig. 5. It succeeds in the south and west of England and in the south of Ireland, but is liable to be injured by severe winters. We have frequently had good specimens of the fruits sent us from Cornwall, and we have seen handsome trees in the neighbourhood of Cork, the largest being 40 to 50 feet high, and as much in diameter.

Water Melons (A. B. C.).—It is quite true that Water Melons can be grown in the same way as Vegetable Marrows, and produce good crops of refreshing fruit, but not in this country. They require practically the same treatment as the English varieties, but more air, with the requisite heat. We have tried them, and seen them tried by others in this country, but have never seen them give anything like the satisfaction to either owners or cultivators that the best varieties of Melons do from home-grown seed. If you are desired to grow Water Melons do your best with them, but it would be a mistake to rely on them for producing a supply of good fruit.

Indiarubber Plant Unhealthy (W. H. C.).—When a doctor is consulted in a case of illness he naturally desires to know something about his patient. When our advice is sought about a plant we naturally desired to know how it has been treated. We can only say the terminal growths of Indiarubber Plants are injured by a too low temperature, and that the leaves fall through the same cause, also in consequence of defective root action. This may result from cold, or a deficiency or excess of water. The plants remain healthy in a night temperature of 50°, provided the leaves are kept clean, and the roots active, in moist yet not over-wet soil.

Mixture for Pipe Joints (Constant Reader).—It is probably owing to no fixed rule in mixing sal ammoniac with iron borings that so many mistakes are made. The custom generally is to leave the matter in the hands of the fitters to whom the work is entrusted, and they use their own judgment. Unfortunately, they frequently transfer this important work to the boy they have with them, who in many cases

possesses no knowledge of the damage that may be done by a careless use of this acid. We have found a piece of sal ammoniac, about the size of a cob nut, ample amongst sufficient borings to make two joints, that is if one ordinary length of rope or "gaskin," as it is often termed, is used, this being 2 feet in length or a little more, and well coated with white or red lead. We have found it a safe and admirable plan to mix with the borings a little red lead in the powdered condition in which it is bought. For instance, to a 7-inch potful of borings a 2-inch potful of lead would be added, and the piece of sal ammoniac advised above. The borings when mixed should not be made too wet. These are the only materials known to us that can be safely and effectively used close to the boiler if the joints are exposed to the fire in any way. Where the flows and returns have not been exposed to the fire, or built in, we have known joints packed with old rope and red lead last for years. India-rubber rings close to the boiler do not stand the heat well, and Portland cement we have never tried close to the boiler.

Improving Vines (Merchant).—Let the man remove the soil down to the roots, taking care not to break any of a fibrous character, nor allow them to be dried. When a number of main fibreless roots are cleared, notch them at 3 feet intervals, making a downward cut nearly half through, and a smooth upward cut to this, commencing an inch or two from it. Place round and over these roots fresh loam with any quantity of wood ashes, and if you have bonemeal add a quarter of a peck to a barrowful of soil. Cover the roots about 4 inches deep, and spread about 2 inches of partially decayed, but not adhesive, manure on the surface. Prior to hot weather in summer add another covering of manure for preventing the soil drying and promoting the extension of roots near the surface, as conducive to healthy growth and fruitfulness. Lifting the Vines may, or may not, be desirable in the autumn, and before advising on this we should require to know the character of the summer growth and condition of the border. No doubt you are aware that errors in management, such as overcrowding the growths, and serious insect attacks, may nullify the effects of the best Vine border that could be made.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (A. B. C.).—*Eupatorium riparium*. (J. W.).—The *Justicia* is *J. coccinea*; the other specimens were quite unrecognisable. (G. W.).—1, *Odontoglossum Rossi majus*; 2, *Cypripedium insigne* var. *Manleyi*; 3, *Lælia anceps*.

TRADE CATALOGUES RECEIVED.

Biddles & Co., Loughborough. — *Illustrated Seed Catalogue for 1892*.

Jarman & Co., Chard, Somersetshire. — *Seed Manual for 1892*.

Barr & Son, 12, King Street, Covent Garden. — *Catalogue of Flower Seeds and Lists of Specialties, 1892*.

Fisher, Son, & Sibray, Handsworth Nurseries, near Sheffield. — *Catalogues of Kitchen Garden and Flower Seeds, and Garden Tools, 1892*.

Reid & Bornemann, Trewsbury Road, Sydenham, S.E. — *Catalogue of Chrysanthemums, 1892*.

Frank Dicks, 66, Deansgate, Manchester. — *List of Reliable Seeds, 1892*.

W. & K. Woodcock, Syston, near Leicester. — *Catalogue of Chrysanthemums for 1892*.

Dicksons, Waterloo Place, Edinburgh. — *Garden Seeds for 1892*.

W. & J. Birkenhead, Sale, Manchester. — *Catalogue of Ferns (illustrated), 1892*.

Kelway & Son, Langport, Somerset. — *Manual of Horticulture and Agriculture, 1892*.

COVENT GARDEN MARKET.—JANUARY 13TH.

BUSINESS very quiet with scarcely any alteration in prices.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, 3-sieve	1	0	to	4	0	Grapes, per lb.	0	6	to 2 6
Apples, Canada and Nova						Lemons, case	15	0	2 0
Scotia, per barrel	12	0	18	0		Oranges, per 100	4	0	9 0
Cobs, Kent, per 100 lbs. ..	30	0	35	0		St. Michael Pines, each ..	3	0	6 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	4	to	0	6	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bunch	0	3	0	5	
Carrots, bunch	0	4	0	0	0	Parsley, dozen bunches	2	0	3	0	
Cauliflowers, dozen	2	0	3	0	0	Parsnips, dozen	1	0	0	0	
Celery, bundle	1	0	1	3		Potatoes, per cwt.	2	0	3	0	
Coleworts, dozen bunches	2	0	4	0		Salsify, bundle	1	0	1	6	
Cucumbers, dozen	4	0	9	0		Scorzonera, bundle	1	6	0	0	
Endive, dozen	1	3	1	6		Seakale, per basket	1	6	1	9	
Herbs, bunch	0	3	0	0		Shallots, per lb.	0	3	0	0	
Leeks, bunch	0	2	0	0		Spinach, bushel	2	0	0	0	
Lettuce, score	0	9	1	0		Tomatoes, per lb.	0	4	0	6	
Mushrooms, punnet	1	6	2	0		Turnips, bunch	0	0	0	4	

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	5	0	to	8	0	Maidenhair Fern, dozen				
Azalea, dozen sprays	1	0	1	6	bunches	4	0	to	9	0
Bouvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6	3	0	
Carnations, 12 blooms ..	2	0	3	0	Mimosa or Acacia (French)					
Christmas Roses, dozen					per bunch	1	0	2	0	
blooms	1	0	1	6	Narciss (French) dozen					
Chrysanthemums, dozen					bunches	3	0	6	0	
blooms	0	9	3	0	Pelargoniums, 12 bunches	9	0	15	0	
Chrysanthemums, dozen					„ scarlet, 12 bunches	6	0	9	0	
bunches	4	0	12	0	Poinsettia, dozen blooms..	4	0	9	0	
Cyclamen, dozen blooms ..	3	0	6	0	Primula (double) 12 sprays	0	6	1	0	
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0	
Euphorbia jacquiniæflora					„ Red, per doz. blooms..	2	0	4	0	
dozen sprays	3	0	6	0	„ Tea, white, dozen ..	1	0	3	0	
Epiphyllum, dozen blooms	0	6	0	9	„ Yellow, dozen	3	0	6	0	
Freesia, dozen sprays ..	4	0	6	0	Tuberose, 12 blooms.. ..	1	0	1	6	
Gardenias, per dozen ..	4	0	8	0	Tulips, dozen blooms.. ..	1	0	2	0	
Hyacinths, dozen spikes ..	6	0	9	0	White Lilac (French) per					
Hyacinths (Roman) dozen					bunch.. ..	6	0	7	6	
sprays.. ..	0	6	1	0	Violet Parme, French bchs.	3	6	5	0	
Lilium longiflorum 12					„ Czar	2	6	3	6	
blooms	6	0	9	0	„ small bunches	3	0	6	0	
Lilium (var.) dozen blooms	2	0	4	0	„ English, dozen					
Lily of the Valley 12 sprays	1	0	2	6	bunches	1	6	2	0	
Marguerites, 12 bunches ..	3	0	4	0						

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to	13	0
Azalea, per plant	2	6	3	6	Ficus elastica, each	1	6	7	0		
Chrysanthemums, per doz.	4	0	9	0	Foliage plants, var., each ..	2	0	10	0		
" large, doz.	12	0	24	0	Hyacinths, per dozen	6	0	0	0		
Cyclamen, per dozen	13	0	18	0	Lily of the Valley, per pot	2	0	2	6		
Dracæna terminalis, dozen	4	0	42	0	Marguerite Daisy, dozen ..	6	0	12	0		
" viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0		
Epiphyllum, per pot	1	6	2	6	Palms, in var., each	2	6	21	0		
Erica gracilis, per dozen ..	9	0	12	0	Pelargoniums, scarlet, doz.	4	0	6	0		
" hyemalis, dozen	12	0	18	0	Poinsettias, per dozen ..	9	0	15	0		
Euonymus, var., dozen ..	6	0	13	0	Solanum, per dozen	9	0	12	0		
Evergreens, in var., dozen	6	0	24	0	Tulips, dozen pots	7	0	9	0		



CREAMERIES.

In common with most other modern improvements, creameries have had to bear the brunt of adverse criticism, which in many an instance has been as violent as it was superficial. Strange is it how invariably shallow persons strive to clog the wheels of progress, to hinder anything calculated to improve the general practice and benefit mankind. Yet thoughtful heed given to existing conditions of dairying, to possible and certainly most desirable improvements, was surely sufficient to convince every reasonable farmer that reform was an imperative necessity if our dairy produce was not to be driven out of the market by imported goods. Easy-going practice, a want of thoroughness in the manufacture and disposal of such produce, has been a general fault, and it was time that an effort was made to stamp out such slovenly carelessness. Sweet are the lessons of adversity! While the price of corn continued to be so high all else upon the farm was a secondary consideration, but when the permanent character of the fall in corn value obtained full recognition, then minor details of farming assumed a degree of importance born of the gravity of the crisis.

From being a mere adjunct to the farm in many districts, dairy farming has acquired such prominence that many, aye, hundreds of farms once devoted to corn growing, are now entirely under pasture. This is notably the case in the midlands, where the mistake has been made of laying down entire farms to pasture instead of keeping just enough arable land to meet home requirements of corn, straw, fodder, and roots. What is the consequence? Foul hovels, beasts so badly littered that their coats are clotted with filth, senseless grumbling about the high price of feeding stuffs, and much negligence in all that concerns the comfort of live stock. We have been asked to design a homestead for a midland dairy farm, and shall have something to say about it later on. In the discussion after a lecture of ours on dairy farming at an East Anglian farmers'

club we were assured that the district was unsuitable for the purpose, yet Scotch farmers are fast turning mid-Essex into a great dairy centre. They flourish where corn growers failed, and are giving the best possible practical contradiction to the fallacious opinions of our worthy opponents.

The lesson has not been lost; its teaching is so valuable, its results so undeniable, that the Scotch farmers have now plenty of imitators; and though there is a frequent recurrence of the outcry about the low price of milk, cow herds are constantly increasing in numbers, the quick returns enabling graziers to take advantage of markets, and thus frequently secure a good cow or two.

That the milk market is becoming crowded we have no doubt, and we hope it may become so full that falling prices will induce farmers to combine in the establishment of butter factories everywhere. If they are conducted upon sound business principles, and care is taken to produce first-class butter always, there is a splendid future before them. To begin with, we rely upon no foreign country for purchasers, proof has been had repeatedly that we have only to produce first-class butter of uniform excellence to obtain a ready market. We are on the spot, and with that advantage must and shall compete successfully with France and Denmark.

It has been said with a sneer that lectures under the technical education scheme are simply repeating the lessons of the Journal of the Royal Agricultural Society of England. Repeating! we should think so, indeed. What else is there for it, but to keep on repeating? Have farmers been so prompt to apply the lessons of the Royal Journal that repetition is unnecessary? Let us just go back to vol. xv., part 1, 1879, in which the late Secretary, Mr. H. M. Jenkins, said, "The extent of business done by French butter merchants is astonishing. For instance, the firm of Lepellier of Carentan, whose trade is solely with England, send the butter over in their own vessels, and in 1877 their exportation exceeded 4000 tons, and the estimated average value in France for the ten years then ended was nearly half a million sterling per annum. They estimated that in 1878 their trade would show an increase of 30 per cent. over its average amount in the previous ten years.

French butter is sent to market in a great variety of packages, according to the requirements of each locality. For the London market kegs holding about 70 lbs. each, crocks holding 50 lbs., and boxes containing one dozen 2-lb. rolls are most frequently seen. Extreme cleanliness and refreshing neatness (amounting almost to what the French call *coquetterie*) are characteristic of all the methods, and they are further distinguished by the free and almost lavish use of clean linen linings. The kegs and linen linings cost about 1s. 9d. each; the crocks, which are protected by an outside basket, and also lined with linen, cost about 2s. each, including everything; and the boxes holding a dozen rolls cost about 9d. each, including linen and paper. In the hottest weather the boxes are sometimes double, the space between the two boxes being filled with cotton wadding. In fact, the French butter merchants thoroughly realise the importance of delivering their wares in an attractive condition, entailing neither trouble nor waste upon the retailer. "Look here," said one of them, "at this French box. I open it" (which he did); "here is the butter fit to weigh out to you without an atom of loss. Now let us break open this cask of Irish; you see I have to scrape it all round and lose a lot, beside the trouble."

Such was the lesson given as clearly and forcibly as was possible twelve years ago. Has its teaching been applied in this country? Was its full significance grasped? We think it was by a few leading spirits, hence the factories founded by certain landlords whose public spirit deserves the highest praise. But farmers generally have indeed been slow to realise the fact that

it is entirely in their power to turn the golden stream from French pockets into their own. Let them combine to establish farmers' co-operative factories, giving heed to the combination of economy with efficiency. Had they done so county councils would not have been at the expense of trying to assist them by lectures now. It is all very well to meet such efforts by assertions that farmers understand their own business, or in other words, they have nothing to learn, and their would-be teachers are guilty of gross impertinence. If this were true the future of farming would indeed be a bad one. It is not true, and the sooner farmers admit it the sooner are they likely to do what is possible to improve their position.

WORK ON THE HOME FARM.

To all flockmasters whose arrangements include lambing this month we say, Have your lambing fold prepared in good time, and see that it is replete with all possible shelter and convenience. Again last season were we cognisant of heavy losses of lambs solely through exposure to cold cutting wind; but this was on farms where no provision of shelter whatever is made for lambing. If this note is read by any such faulty shepherds we cordially invite them to give a trial to shelter, and well rewarded will they be. The principle of the thing is to guard ewes and lambs from cold winds, as well as frost, snow, and excessive wet. Enclose sufficient space to accommodate the entire flock; make plenty of snug cribs around the inner sides of the enclosure with thatched hurdles—square cribs a hurdle wide and long, with a roof of similar thatched hurdles sloping outwards. The outer wall is best formed of parallel lines of hurdles, with the space between well stuffed with straw or any rough litter. Have at least two outer enclosures for delicate ewes and lambs requiring special supervision for some time after the lambing.

When lambing begins each ewe with its progeny is placed in a separate crib for a day or two till it is certain that all is going well, when they are let into the general enclosure, any doubtful cases being taken to one of the small enclosures for special treatment and care. At first lambs and ewes are driven into the large fold every night and are kept in by day in stormy weather. Judgment is required as to when they may be left out, and it is better to err on the side of extra caution rather than to run any risk of undue exposure to cold and wet.

Feed the ewes well. Rich blood implies rich milk, and a fairly high condition is decidedly advantageous to the lambs. Do not forget the severe strain to which pregnant ewes are subjected. Not only feed well but keep them from exposure, which must tell upon their enfeebled condition. Let the lambs have some lamb food as soon as they can take it; it is wholesome and nutritious, being precisely the mixed diet that promotes brisk, robust growth. Nothing must be left to chance, but everything done for the health and comfort of the flock. Really, to see the want of any provision of shelter for the lambing, the turning out, or rather leaving out of very young lambs in a bleak, exposed meadow, the take-your-chance kind of practice prevalent on so many farms, is positively astounding. Yet we hear again and again that farmers know their own business better than anyone else, and that much of the advice offered them is superfluous.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892. January.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	3	30.062	1.0	39.0	W.	38.7	42.6	31.3	46.3	28.2	—
Monday ..	4	30.064	28.9	27.8	N.W.	38.0	35.0	27.1	54.9	20.8	—
Tuesday ..	5	29.999	28.4	28.0	S.W.	36.9	43.1	23.2	45.6	17.0	0.010
Wednesday ..	6	29.383	42.6	40.2	S.W.	36.2	43.4	28.2	45.3	26.2	0.071
Thursday ..	7	29.425	30.2	29.5	S.W.	36.0	36.9	29.8	56.2	24.4	0.010
Friday ..	8	29.443	29.2	28.6	W.	35.9	34.9	25.9	56.9	23.0	0.029
Saturday ..	9	29.448	27.2	27.0	N.	35.6	29.8	24.2	36.1	26.2	—
		29.689	32.5	31.4		36.8	38.0	27.1	43.8	22.8	0.120

REMARKS.

3rd.—Bright early; overcast from 10 A.M. to 1 P.M., with spots of rain about 11 A.M.; bright sunshine in afternoon, and clear night.

4th.—Brilliant throughout.

5th.—Bright early; overcast after 10 A.M., a few flakes of snow at 11.30 A.M.

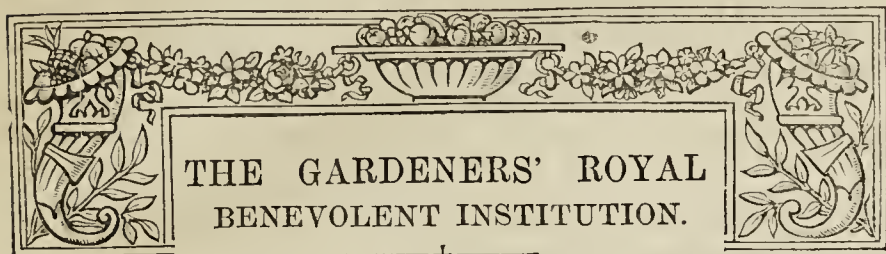
6th.—Overcast early, with spots of rain; heavy shower of sleet and soft hail from 10.10 to 10.30 A.M., whitening the ground, then frequent rain or wet snow till noon. Almost unbroken sunshine after 1 P.M.; brilliant night.

7th.—Bright sun till 11 A.M.; overcast from noon to 2 P.M., then occasional sun again.

8th.—Sufficient snow in the small hours to cover the ground. Bright sunshine all day.

9th.—Nearly half an inch of snow in the night, cloudy day, but the sun occasionally visible.

A wintry week, but with a good deal of bright sunshine. Mean temperature about 5° below the average, but just above the freezing point.—G. J. SYMONS.



THOUGH during the past week sadness has been brought into thousands of hearts and homes by the sudden death of a most amiable Prince, and the sympathy of the nation has gone out with rare spontaneity towards all who were dear to him, yet during the same period of sorrow the anxieties of those aged gardeners, and the widows of gardeners, have been lightened and their prospects brightened who have become participants of the benefits of the right Royal Institution above named. Great and good is the work that this noble charity has done; yet well as it has been supported by many generous hearted subscribers, it cannot meet the calls upon it by necessitous applicants, and no less than nineteen of these must struggle on as best they can till adequate funds are subscribed to assist them in their old age and infirmity. While the deep commiseration of all connected with the *Journal of Horticulture* is felt for the greatest in the land in their time of trouble, it is also extended to those veterans and needy in connection with gardening who failed in being elected as annuitants on Friday last of the Institution to which they longingly looked for aid. Glad shall we be if contributions could flow in during the present year to enable the Committee to elect all as beneficiaries in 1892, who must now be so grievously disappointed. Still there is cause for thankfulness that so much has been done, and it is so far cheering to observe in the report of the Committee on page 48 that a greater amount was expended in pensions last year than during any similar period in its history. The sum so disbursed was nearly £1740, and the good it has done in providing homely comforts to the recipients cannot be expressed even if comprehended. It is further officially stated that since the establishment of the Institution, more than fifty years ago, upwards of £55,000 have been distributed in pensions and gratuities to needy recipients. That is a splendid amount truly, and surely no money has been better spent and more worthily provided.

Reference is naturally made to the deaths which have occurred during the year in connection with the Institution. One of its Vice-Presidents, the Duke of Devonshire, passed away, leaving a record of good works behind him, and the loss of two useful members of the Committee, Mr. W. Richards and Mr. F. Meston, next is deplored. But the greatest blank was made by the sudden demise of the late Secretary, Mr. E. R. Cutler, whose services during a period of half a century were so highly appreciated. It was felt that an official so zealous in the interests of the charity, and with such a wide connection, would be difficult to follow, and it is, therefore, the more gratifying to learn that the present able and most courteous Secretary, Mr. G. J. Ingram, is proving a competent successor. His previous experience in the conduct of charities specially fitted him for the position he now fills, and, with the co-operation of an active and practical Committee, the public may rest in the assurance that the Institution will not be less prudently managed in the future than it has been in the past. We are told that seventeen pensioners died during the year, and the widows of three were eligible to succeed their late husbands, though one of them did not live long to enjoy the pension; and one veteran, James Wells, after receiving annuities during a period of thirty-one years, departed at the age of 103, having received no less than £521 from the funds of the Institution during his long career.

As stated in the report, thirteen new pensioners were to be placed on the books this year—six without election (according to rule), and seven by the votes of subscribers; but instead of seven, the Committee were able to have ten elected. The disposition is to do the greatest possible amount of good consistently with sound finance, and it remains for a thoughtful public who appreciate the services of gardeners, and for gardeners themselves who are in comfortable circumstances, to support the Institution, and enable it to extend its beneficent operations. We trust that all who can do so will not fail to be enrolled as members, and they will be the happier if they never need its aid. The greatest encouragement to the affluent to subscribe generously to this and similar institutions is to see a willingness of the class for whom the benefits are intended to do what they can in making provision for their aged fellow men who have worked hard, long, and creditably, too often for emoluments quite incommensurate with their ability and zeal.

WINTER PRUNING.

PRUNING is not a mere detail of garden practice, it is a science, which should have a much higher place in horticulture than it has held hitherto. The amount of harm done in gardens with the pruning knife by ignorant men is beyond belief, and by way of test every gardener should be able to give a satisfactory reason for each cut made, to explain why a shoot is pruned or not pruned, to show that his work as a whole is conducive, not only to fruitfulness, but to the production of fine fruit. In many gardens the annual pruning of fruit trees is now being done; the trees have produced their crop of vigorous shoots, which are now being shortened to within an inch or two of the base. What is the use of such growth? What is the use of such pruning? Let me invite every society for the mutual improvement of gardeners to take these queries for discussion at their next meeting, to try and make it clear to every member that the growth of a fruit tree is for the production of fruit, and not of flower sticks. How anyone can go on year after year contentedly hacking off a thicket of wood, and getting little, if any, fruit for his pains is past comprehension.

The remedy is obvious. If it is required to retain growth within prescribed limits and symmetrical outline recourse must be had to root-pruning to check undue vigour of growth. Coincident with this there must be a judicious and tentative system of summer pruning to induce a free production of blossom buds, a rapid development of spurs. Winter pruning of such trees then resolves itself into the removal of useless spray, the pruning of sub-laterals shortened at the end of August—a detail of summer pruning—any necessary thinning of spurs and spur growth, the shortening of leaders, and it may be the thinning of branches which becomes necessary as spur development goes on. If you want fine fruit and plenty of it from spurs, the spurs must be fine. Have the branches of pyramids, cordons, bushes, and espaliers wide apart, and bristling with bold fruit buds, and remember that branch-thinning as well as spur-thinning often becomes a necessity.

Where freedom of growth is possible the shoots of trees of exceptional vigour should be left at full length and be well thinned. The beneficial effect of this treatment upon both Pears and Apples is seen either in the first or second year, subsequently in the increase of fruit buds. It is not altogether a question of sorts. I have two trees of Lord Suffield Apple, one of which so treated had its long robust shoots so thickly set with blossom buds that it was laden with a heavy crop of fruit in the second season. On the other fruit came more slowly, but it came eventually, both trees being changed from barrenness to fruitfulness by the simple remedy of thinning shoots freely, and leaving the remainder unshortened. The treatment applies to established trees, often

old, which have apparently become irretrievably barren. No fairer sight have I seen in fruit culture than some old Apple espaliers on each side of the central path of a farmer's garden at an old farmhouse in Suffolk. The path leading from the entrance gate to the front door of the farmhouse was arched over by the branches all heavily laden with fruit. It was some years ago that I saw this charming arcade, and the sight and the lesson it conveyed will never be forgotten. The old trees had probably been hacked about for many years; the freedom of growth which I saw was unlikely to have been an outcome of reasoning, of scientific acumen, of set plan or purpose of any sort. The trees had most likely been left to chance, which for once had proved the best thing possible for them.

Another very important part of winter pruning is that of quite young trees. Whatever may be the form to be imparted, whatever may be the stock on which they are grafted, do not be too eager for fruit. The man whose boast it is that his trees bore so many dozens of fruit the first season is proclaiming his mistake. Of all things I should like in his interest, or, better still, in the common interest, to prevent a recurrence of such folly. When we plant a fruit tree we have first of all to strive for a vigorous development of stem, branch, and spur. Strong, firm, well-ripened wood is what we require and must have; only get this, and the fruitful habit is easily induced if it fails to come naturally.

Now, let me ask any readers of the Journal who may have planted fruit trees last season to examine them closely, and see what sort of condition they are now in. They came from the nursery well furnished with robust, healthy growth; have they made growth of similar vigour since they were planted, or do they now present a comparatively starved and stunted appearance? If the latter, something is wrong; what it is one can only suggest, as it is impossible to be positive without actual inspection. If the trees were not pruned when planted, the first year is usually lost; if they have been suffered to bear fruit, they are now probably so much weakened that any fresh growth has an attenuated appearance. Cordons may have a number of lateral growth 2 or 3 inches long, each shoot tipped with a blossom bud. Such shoots must be shortened, and nothing should induce one to leave them for the chance of fruit. Spur formation must begin at once; fruit the first two years is altogether a secondary consideration.

A few weeks ago I was requested to inspect a garden wherein the fruit trees had become practically barren. The situation was admirable—a sunny southern slope in a southern county; the soil was shallow, upon a substratum of sand. Peach and Nectarine trees on one wall, though starved, were sufficiently healthy to justify my advice to shorten all main branches to within about 3 feet at the base, to prune out any weakly growth remaining after that had been done, and to give the roots quite 2 feet in depth of fresh, sweet, rich loam, removing as much of the shallow exhausted soil as possible without damage to the roots; then with a surface dressing of manure and liberal watering during growth next season free robust growth is practically a certainty. I had to condemn another wall of trees outright, and recommended a selection of choice cordon Pears as a suitable substitute for worn out Apricots and Figs. The best Pears are entirely worthy of wall space as cordons. They soon reach the limit of stem extension, form spurs quickly, and come early into fruit bearing, the fruit being of superior flavour to that from trees growing in the open.

Very interesting is this work of winter pruning if it is done in the right way with judgment and care. Each kind of fruit requires special treatment, each tree being pruned according to its condition. Peaches and Nectarines, for example, often require pruning more freely than usual, simply because they have so much weakly growth. To have really fine full-sized fruit there must be robust growth well set with triple buds. Slender growth with its single blossom buds cannot yield fine fruit. If the trees have much small wood off with it; be content with a moderate quantity of fruit this season, keep the soil well stored with fertility throughout the period of growth, and there will be plenty of stout wood from which a full crop may be had next year.—EDWARD LUCKHURST.

ALLOTMENT GARDENS.

IN the Journal of the 7th inst. were a few words in reference to the Kenilworth Allotment Association and their allotment gardens, and as the subject of "Allotments" is now a prominent one, and the present time is suitable for a few more words on the subject, I beg to trouble you with them.

There can be no doubt that when properly worked out large gardens attached to cottages at a low rental are an immense boon to the agricultural labourer, and in some districts it is a great pleasure to see the well-built cottages and large gardens, such as

one meets with in the village of Stoneleigh, close to Stoneleigh Abbey, and the adjacent villages on the estate of Lord Leigh, near Kenilworth. Both Lord and Lady Leigh encourage good cultivation of the gardens, and cleanliness and comfort in the cottages, and it is very pleasing to know that in other places land-owners now pay very much more attention to the comfort of the agricultural and garden labourers than they formerly did.

At Alderminster, a few miles from Stratford-on-Avon, and not far from Kenilworth, there are excellent houses, more like small villas, with large gardens to them, which are let to the labourers at 1s. per week. At least it was so when your correspondent, the Rev. J. A. Williams, lived there, and he established an excellent parochial exhibition of garden produce.

But Kenilworth itself is outside the area where Lord and Lady Leigh so beneficially work for the good of their own people; and although many cottagers and working men have large gardens, which, as a rule, are well cropped and kept, the demand for fine fresh Strawberries in the neighbouring towns is so great, and the Kenilworth Strawberries have such a reputation, that even the cottagers grow for sale, the favourite variety being Sir Joseph Paxton, and President is also somewhat generally grown. The district is rather early, and some gardens better situated than others, but Strawberries are well grown, and fetch good prices in Birmingham, Leamington, Warwick, and in Kenilworth itself, now so popular with the large contingent of visitors from America and elsewhere, who come to see the grand old Castle ruins. Many of the working men still wanted more ground for a more extended supply of vegetables and fruit for their household use, hence the demand for more allotment gardens, as stated in my brief note to the Journal of the 7th inst., and I wish to point out one or two features of the Kenilworth Horticultural Society in connection with the cottagers' exhibits.

Prizes are offered for the best cropped and cultivated gardens in Stoneleigh and the adjacent villages, the internal condition of the cottage being also taken into consideration; and, as one of the judges each year appointed to visit the gardens and cottages, I can honestly testify to the excellent cultivation and cropping of the gardens, and the comfortable and cleanly appearance inside the cottages. Prizes are also offered for the cottage gardens of Kenilworth, and separate prizes also for the cultivation and cropping of the new allotments. The judging of all the gardens and allotments takes place three to four days before the day of exhibition, and as all entries of proposed exhibits have to be made five or six days before the day of the show, a copy of all these entries is handed to the judges, who check them off, and any entries of exhibits are struck out if not found in a presentable state for the exhibition. In judging the gardens and allotments, points are previously decided upon as to produce, and to cultivation also. The same judges officiate on the day of exhibition, and this insures honest exhibitors, and prevents any begging, buying, or stealing, as is sometimes resorted to by some exhibitors. It goes without saying that every horticultural society in the kingdom should do its utmost to prevent this, but it is a difficult matter to deal with; but when known and proved to have been done, the dishonest exhibitor should be expelled or excluded from any further exhibition.

Going back to the allotment question, it is a great misfortune that in some cases the labourer has been tempted to believe in so much greater prosperity from it than can arise unless their spare produce can be readily collected and taken into paying market localities. There lies a great difficulty at present, and in the past season where in some districts of the Midlands—in Warwickshire, Staffordshire, and Worcestershire certainly—many hundreds of bushels of Victoria and Red and White Magnum Bonum and other sorts of Plums and Damsons growing in the outlying districts were scarcely worth gathering, as there was little or no sale for them. If there had been an organisation at work for collecting these things and conveying them to depôts near to railways, when they could have been packed and sent on by rail to towns and markets, the cottagers would then receive direct benefit, and learn what best to do year after year. Larger crops could be grown of produce for which there is a demand, such as Raspberries (always wanted), Black Currants, Strawberries, Plums, Damsons, good Apples and Pears, good Onions, any quantity of good fresh Peas, so very difficult to get in large towns, manufacturing centres especially, and other things, including honey, new-laid eggs, outdoor-grown Mushrooms, and other things.

No life is a much harder one than that of the agricultural labourer, with a small wage, a large family frequently, and long hours of work. Still a good deal of garden work can be done by the wife and family, and a few pounds made through the year from the sale of garden produce not wanted by themselves would form a nest egg for helping through the winter when the labourer is out of work. Much can be done to benefit this class by giving them

additional land when their gardens are not large enough, and teaching them how most profitably to cultivate it, and then assisting them in the disposal of produce to the best advantage. Other things could be taken in hand by wives and daughters, such as making home-made wines, for sugar is cheap, and so much material is present in most gardens for converting into a pleasant drink, that many would be glad to have at hand if a pure home-made wine could be obtained at a cheap price that would still pay a fair profit to the maker.

There are problems connected with the movement for ameliorating the condition of the humble workers in agriculture which will have to be dealt with and worked out, but should be dealt with in a practical manner. Our manufacturing and other towns are overdone with labour, and vegetables are none too cheap for the poor, and in order to relieve the non-employed in these large towns, more industries want opening in the country districts to keep the country labourers at home, and even make an opening for the employment of some of those who have drifted to the towns and find little employment there. The subject is of very deep importance to the nation at large, and much more than passing thought should be devoted to the fact that we are paying foreign countries millions of money, much of it for produce that ought to be, and can be, grown in Great Britain.—W. D.

REVIEW OF BOOK.

The Rosarian's Year Book for 1892. Edited by the Rev. H. HONYWOOD D'OMBRAIN. London: Bemrose & Sons, 23, Old Bailey and Derby.

THE issue of this annual for the present year contains several chapters of especial interest to the Rose-loving world, and as the Editor says in his preface, "Some of the writers are new and the subjects novel, while old ones are treated with freshness." The frontispiece is an excellent photograph of Mr. T. W. Girdlestone, which is followed by some account of his work in connection with Dahlias and Roses. The other chapters are as follows:—"Rose Growing near Big Cities," Mr. J. Bateman; "The Rose as a Garden Plant," Mr. W. J. Grant; "The Rose, and the National Rose Society, in 1891," the Editor; "Experiments in Rose Hybridisation," Right Hon. Lord Penzance; "Stocks," Mr. Frank Cant; "The Ethics of Rose Showing," Mr. E. B. Lindell; "Rose Jottings," Mr. Alexander Hill Gray; "Rose Polyantha as a Stock," Mr. T. W. Girdlestone; "The Comparative Hardiness of Tea Roses, and their Winter Protection," Mr. George Paul; and "The Weather of the Past Rose Year," Mr. E. Mawley, F.M.S., Hon. Sec. National Rose Society.

The chapter by Lord Penzance, describing his "Experiments in Rose Hybridisation," is exceptionally interesting and original. We, therefore, take the liberty of making a short extract from an article which we recommend all rosarians to read in its entirety.

Having explained the reason why the Sweet Briar was especially selected as a seed-parent in various crosses, the author continues as follows:—"Soon after I began work, out of twenty blooms of the Sweet Briar that I impregnated with foreign pollen, nineteen produced hips. The cross-bred seedlings produced from it, moreover, have a strength of root and of growth far surpassing the original stock, and they strike as cuttings with a marked facility. In experimenting with the Sweet Briar as a breeding stock, I took no account of its delicious foliage, for I had but a slender expectation that its seedlings would be endowed with that additional charm. But before setting to work upon it, in order to obtain experience in the needful details, I crossed a number of Hybrid Perpetuals with the pollen of others of the same class. As every individual bloom on which I operated was marked with a label, and all details of date, condition, and state of the weather at the time of working were faithfully recorded, the number upon which I worked was necessarily limited, and could bear no comparison with the doings of those who sow hips by thousands, gathering them promiscuously from the finest varieties, without any artificial impregnation, and who esteem themselves fortunate if one seedling out of a thousand turns out to be worthy of culture. This is the system I believe at present pursued both in this country and in France for the production of new varieties. It might be thought that when the two parents were carefully selected (which was the case with all the Hybrid Perpetuals that I tried), a better progeny would be obtained than those which come up by chance from seed picked at random as I have just described. Such seed is often supposed to be the result of foreign pollen carried to the bloom on the legs or bodies of insects, and even the winds have not escaped suspicion as a party to this irregular intercourse. But there is in truth no ground of accusation against either insects or winds, seeing that a Rose bloom, self-fertilised, is quite capable of producing seed, the plants raised from which are widely different, not only from the parent, but from one another. I have constantly noted this fact under circumstances and conditions which absolutely preclude the intervention of foreign pollen from any source whatever.

"The results which I have obtained from crossing the Hybrid Perpetuals with one another have, in many instances, given me flowers as beautiful as many that find a place in the nurserymen's catalogues of the day, but none of any especial merit. On the other hand, they have given me many plants of exquisite colour and scent, and some flowers

which, though falling far short of the standard form, had special charms of their own. Still, upon the whole, regard being had to the labour involved, I see no reason to conclude that it would pay the Rose cultivator to exchange the present system for one in which the seed-flowers should be artificially impregnated; and I doubt if it would respond to the expectations of the amateur.

"Cross-breeding between the different families of the Rose is quite another matter. With the blooms of the Sweet Briar the results of so doing are full of interest. I tried at first to get a cross with the Persian Yellow Briar, or what is almost the same thing, Harrisoni. The late Mr. Henry Bennett told me that he had sown hundreds of hips from the Persian Yellow, or produced by the pollen of that Rose, but without any success. I was more fortunate. In my first or second season I obtained a complete cross with the Persian Yellow. The bloom is rather larger than that of the Sweet Briar, and of a pale yellow, and the foliage quite as fragrant as that of the parent, if not more so; but it is little, if at all, more full, though it is more cuppy. This plant is in the hands of Mr. Geo. Bunyard, of Maidstone, and will be, I



FIG. 6.—SWEET BRIAR LADY PENZANCE.

presume, distributed to those who care to possess it in the course of this next season.

"The Austrian Copper was the next object of my ambition, and here, too, I have been fortunate. The bloom is not quite so deep in its colours as that of the pollen parent, but it is a close copy of the original, and the foliage is quite as fragrant as that of the Sweet Briar. Then I tried the pollen of the Hybrid Perpetuals, and of the Hybrid Bourbons and Hybrid Chinas with the Sweet Briar. With all of these I have had no difficulty in obtaining distinct crosses. I say distinct, because the wood, the foliage, the habit of growth, and the thorn, are not those of the Sweet Briar. The flower of these plants is extremely attractive, I think. The size of the flower varies. They are all larger than that of the Sweet Briar, and of a light pink colour—something about the tint of the old Rose, La Reine. Most of them, I should say, have a second row of petals, and one or two of these seedlings have a bloom much larger than that of the Sweet Briar.

"Two more of these seedlings bloomed for the first time last summer; they were the offspring of the dark crimson Hybrid Perpetual, Souvenir d'Anguste Rivière, and their flower is of a much deeper and richer colour. Among hundreds of Sweet Briar seedlings, which are evidently crosses, I have had only one that did not retain the sweet foliage of the

seed-parent, and as to this one I cannot help thinking that there must be some mistake as to its parentage.

"About three years ago I thought that I would try the effect of crossing the races the reverse way—that is, applying the pollen of the Sweet Briar to the blooms of some of the Hybrid Perpetuals. In no single instance had the seedlings a fragrant foliage; but it is but right to add, the number of seedlings so raised is but small. The blooms dealt with were not numerous, and many of them did not produce hips. I consider the effect of using the pollen of the Sweet Briar, therefore, as still an open question.

"I have now to state a fact that I own was a considerable surprise to me. As many, I think, as four or five out of the seedling Sweet Briars which have hitherto flowered have now turned out to be Perpetuals, blooming a second time in the autumn, and blooming then freely. During this autumn of 1891, indeed, in spite of the heavy rains, they have gone on blooming right through the month of October, and they bloom, like their seed-parent, in clusters. An additional charm, and in my estimation a great charm, is to be found in the fact that these flowers have a very delicious scent—a scent quite independent of and different from that of the foliage. Whence comes this habit of autumn flowering? I am unable to answer the question. Some of these Perpetuals, it is true, had for their pollen-parent a Hybrid Perpetual Rose such as La Souveraine, but the parents of others have been of a Hybrid China or a Hybrid Bourbon, neither of which ever bloom a second time—such for instance as William Jesse and Paul Rieaut. If we go back a generation, no doubt we come in contact with a progenitor endowed with this 'perpetual' quality, as both the China and the Bourbon Roses are of that kind, and this much-coveted habit of perpetual blooming may, like the gout, be given to skipping a generation. I shall know more about all this when the Sweet Briar crosses with the Tea Roses, of which I have a great many, are a little older, and vouchsafe to show me what they can do by way of flower."

[As an example of what Lord Penzance has accomplished we herewith present an illustration (fig. 6) of Sweet Briar Lady Penzance, for which the Royal Horticultural Society has awarded a first-class certificate. This is a charming single variety, with metallic rosy bronze flowers, yellow at the base of the petals. The flowers are about 2 inches across, and the foliage is fragrant. A note accompanied the plant, exhibited at a meeting of the Royal Horticultural Society, was to this effect:—"The specimen is a graft or bud on the Manetti of a seedling from the common Sweet Briar, crossed with the pollen of the Austrian Copper Briar in 1886. The seedling came up in the spring of 1887, and flowered for the first time in 1889, but had only one flower. It is now a vigorous plant 4 feet high, the wood a sort of purple colour like that of the pollen parent."]

FRUIT CULTURE.

EXTENSION V. RESTRICTION.

(Continued from page 19.)

THE cultivation of fruit for profit needs more than a passing thought; it is not merely sticking the trees into the ground and leaving them afterwards to take a natural course. This system of extension has resulted in the ruin of many orchards in the past.

What kind of trees should be planted? Should they be standards, bushes, or pyramids on a free or a dwarf stock? Those on the Crab and the Pear have been largely planted in the past, and will ever be useful in orchards that are grazed or intended for that purpose when the trees attain a bearing condition. They are the most suitable also for planting in hedges that divide one field from another. Only those varieties with robust constitutions should be selected for these open positions. Large quantities of trees might be planted of both Pears, Apples, and Plums in hedgerows, and in a few years they would yield valuable crops of fruit. They would prove no detriment to the land for farming operations; on the contrary, they would quickly enhance its value.

As we have in view fruit-growing for profit, we should plant Apples on both the Crab and Paradise stock and Pears on the Pear and Quince, the latter to fruit until the former come into bearing, for it must be remembered that several valuable varieties of Apples are shy on the Crab stock in a young state; but those on dwarf stocks would very quickly commence yielding a return, and would continue to do so until the others attained size and needed more room. It is a mistake that can be seen in nearly all orchards to plant the permanent trees too closely together. About 15 feet is a suitable distance for Plums, and 30 feet or more for those on the Crab and Pear stocks. I measured the distance this summer of the trees in an orchard that have been planted about twenty-five years; they are 30 feet between the rows and 21 feet from tree to tree. They are already sadly crowded in the rows—in fact, a third of each tree is useless. Those on the Paradise and Quince would be placed 10 feet apart. In some soils those on the Quince commence fruiting very early, and considerable care is needed at first to prevent their fruiting too freely, or they will never attain sufficient size to be of much use. They soon become a mass of fruit spurs, making little or no growth, not sufficient, at any rate, to sustain the tree in that health and vigour which is necessary to prolong life and enable

it to perfect fruit of the first size and quality. When I refer to trees on the Paradise I refer to the English variety, not the French Paradise. I am not partial to it or the dwarf stunted trees that are generally found upon it. There can be no question that the French Paradise too much promotes early fruitfulness, the tree has not a chance of attaining strength or size. Those who plant these extensively will, I fear, be sadly disappointed in the years to come, for if they are allowed to fruit as they will fruit, their life can only be a short one, and they will be worn out by the time those on the English Paradise and the Crab begin to be profitable, and would yearly become more so. When fruit trees are planted for yielding good fruit and profitable returns, my advice is, Plant trees that will last in good bearing condition for at least half a century. For temporary purposes, to yield a return practically at once, those on the French Paradise are useful, and would pay for planting; but I place very little higher estimate upon them than I should upon a Gooseberry or Currant bush planted between the rows of those on the English Paradise to be cut away when crowded out.

Pruning should be done from the first, and principally during the summer, so that light and air can penetrate freely to the spurs and fruit. Half the bushes and pyramids are too crowded with branches, and fruit spurs of any value exist only on the outer branches of the tree. Standards should be pruned for the first few years, and then allowed to grow untouched, except for the removal of any cross branches or otherwise that show a disposition to crowd the tree. From first to last those on the Paradise would be pruned, the principal work being done in August.

It would pay to thin the fruit on bushes and pyramids, and also such free-fruited kinds as Cellini, Lord Suffield, Ecklinville Seedling, Stirling Castle, and others, which should never be on other than the Crab stock; they fruit so freely, even on this, that unless some of the fruit is removed in the early stages of the trees' growth, they would soon become a mass of fruit spurs and fail to attain a large size. Puny fruit is practically worthless in the market, and if all that sets and swells in some seasons is allowed to remain, there is certain to be a quantity of small ones. Thinning would insure a good crop of fruit of the first size and quality, and give the trees every chance of perfecting the crop, and at the same time preparing bold fruit buds for the following season. Heavy crops exhaust the trees to such an extent that the following season is necessary in which to recruit themselves. Moderate crops annually of good fruit are better and more profitable than a heavy crop every second or third year. The chance of a crop would be doubled, for spring frosts do not always destroy the blossoms.

We must now consider the stocks upon which Pears and Apples are worked, and its influence on the tree and fruit. It is no uncommon thing to observe that portion of the stock above ground thinner considerably than the stem of the tree above the union. This is particularly noticeable in the case of Peaches and Nectarines, Apples on the Paradise, and Pears on the Quince. The more the head is encouraged, or in other words allowed to extend, the greater the difference becomes. Single cordons rarely display any difference, and in most cases the stock continues to be the thicker of the two. A good many contrivances have been resorted to in the past to encourage them to swell. It is a common idea that the stock is "hide-bound," and the knife is drawn down the bark for the purpose of opening it and inducing it to swell. I have no faith in such practices, and the good that results is more imaginary than real. If the principle commonly known as extension is followed the tree outgrows the stock upon which it is worked. For some years we have been in the habit of working Roses close to the root, and why not fruit trees on the same principle? I am convinced that it is a mistake to work either Apples, Pears, Peaches, or Nectarines above the ground level, except the stock for the two former is the Crab or the Pear as the case may be, which in nearly every instance that I have observed remains the thickest. But why work the stock in the other case close to the ground? Because the stock when below the surface invariably swells as freely as the variety worked upon it. If what are known as bad stocks, especially in the case of Peaches and Nectarines—that is, stocks above the ground that do not swell, are buried, they commence swelling freely in nearly all cases. If Peaches and Nectarines were worked close to the ground level, or sufficiently near, so that when planted the union would rest upon the surface of the soil, we should hear very little of bad stocks in the future. Budding and grafting Apples and Pears on strong large stocks well above the ground is dying out, and rightly so, because in the past disease and early death have in thousands of cases resulted.

The influence of the stock upon the variety worked upon it is very marked in many instances. We may say the Quince and the Paradise stocks restrict considerably the growth of the tree, increase the fruitfulness of the variety, and the size of the fruit in

many cases. But this is merely leading to that part of the subject that I am anxious should be discussed, and that is the system known as double grafting.

I have said that the general opinion is that clean healthy trees of unsuitable varieties cut over and regrafted would in a few years yield profitable crops of fine fruit. But I should hesitate before carrying out this plan, not merely because my experience in the matter is limited, but mainly because we have not sufficient reliable data upon which to work in order to carry an operation of this nature on a large scale to a successful issue. We know that early varieties worked upon naturally late varieties have a great influence on the fruit and its time of ripening. The length of time required to bring the variety to perfection would be greater than if the same kind was worked upon an early ripening variety. This might, and probably would, be reversed if the very opposite was practised. Shy setting and shy fruiting varieties used as stocks also impart these bad qualities to the varieties worked upon them. These difficulties are not so readily overcome when we take into consideration the carelessness that has been exercised in the past in rearing stocks on which to work various kinds of both Apples and Pears. The stock has been called the Crab, when it has originated probably from some worthless late variety of Apple, and who can tell the influence these stocks may have had on the size of the fruit and its quality? But when trees are cut over and regrafted there is an intermediate variety, between the stock and the variety worked on the top. This intermediate portion, and its influence on the tree and fruit is, to my mind, a matter of considerable importance; but one that is generally, I am sorry to say, passed over in silence by those who strongly advise heading down large trees and regrafting them. We do know that this intermediate portion influences both the tree and the fruit. If *Beurré d'Amanlis* is worked on the Quince and then cut over and worked with *Marie Louise*, this variety has more vigour than it would have worked on the Quince. The fruit grows larger, and is more thickly covered with russet, with me, at any rate, than on either the Pear or the Quince. The most remarkable feature is the tendency of the fruit to ripen earlier. It is clear that double grafting, and any benefits that may result by its adoption, are only really known in a very few cases. Practice extending over years, with careful observation, noting results, failures, and successes, are needed before it is safe to advise regrafting on an extensive scale. Before I should adopt, or even advise regrafting, I should strongly urge planting young trees. The difference between the development of the head on the old stock and the attainment of a fruiting size in the case of the young tree would not be great. With our present state of knowledge, young trees on stocks that induce fruitfulness, and which we know are capable of yielding fine fruit under favourable circumstances, are the most reliable, and the only ones by which fruit growing can be rendered a profitable concern, or the land made to yield creditable returns as early as possible after planting.—WM. BARDNEY.

(To be continued.)

HARDY FLOWER NOTES.

GENIAL is the atmosphere of the greenhouse, and bright and gay the prospect within; even when without piercing winds assail us, and the earth is hard as iron. Despite the contrast, as the opening days of the New Year move on, the lover of hardy flowers turns with unwavering fidelity to his borders and rockeries, where the blossoms of the timid shrinking flowers of the early days begin to show. Goethe somewhere tells us that "Flowers are the beautiful hieroglyphics of Nature, with which she indicates how much she loves us," and to the hardy plantsman these outdoor flowers speak with softer, sweeter tongues than do their more brilliant sisters which, in our climate, need the protection of glass and the aid of artificial heat. And now these hieroglyphics, blurred and obscured as they may be—not with the relentless hand of time, but with cold wintry winds—speak of the days when we may say as Mary Howitt said:—

"See the yellow catkins cover
All the slender Willows over;
And on banks of mossy green
Star-like Primroses are seen;
And, their clustering leaves below,
White and purple Violets blow."

Though the glorious days of spring with their many flowers are still afar off, even January adds to our pleasures, although rain alternates with frost and snow, and as I write the flowers are snugly wrapped in the pure white coverlet with which Dame Nature protects her tiny children from the biting frost. Some call the snow a shroud, and while it is such to the plants whose day is done, to the hardy flowers it is a warm covering, shielding them

from the cold. Year by year we look eagerly to observe which of the flowers will open first to claim the honour of being the herald of the approach of Flora's retinue. With a good collection there seems no gap in the procession. In 1890 *Iris Bakeriana* was in bud as the year began, and in close succession flower after flower appeared until *Colchicum Decaisnei* brought up what seemed to be the rear; but first tripping on the heels of this pretty Meadow Saffron, and then side by side with it, came *Crocus hyemalis*. These together with a puzzled *Merendera* which, being newly imported, had not yet adapted herself to our insular ways, ushered in the year; and the pretty trio seemed to claim that, having seen the old year out and the new year in, they were justly entitled to the honours of rearguards and heralds of Flora's pageant. And if the goddess has more stalwart supporters she has few with more beauty of their own.

The little *Merendera caucasica* with its starry purple flowers prettily tinged with white towards the base of its petals, the *Colchicum* with its more Tulip-shaped purple blooms, and the *Crocus* with its long-tubed white blossoms, appear to vie with each other in devotion to their deity.

While this trio of Graces thus claim precedence, what has become of the Snowdrop, which by virtue of her early birth (if we are to believe the pretty legend that she was created to comfort our first parents when driven from Eden) has hitherto been, as the poet says, "the early herald of the infant year?" Alas! in my garden at least, she has had to give place to modern upstarts without the early associations which endear her to us, and without the merit—for merit it is—of having long been familiar in this isle of ours. The Snowdrops are later this season than for a few years past. *G. Elwesi* is again the furthest forward, beating in point of time *Galanthus præcox* of Maw and *G. nivalis* var. *umbricus*. The common *G. nivalis* is peeping up all around, and soon we shall see the flowers nodding to the wind, as Wordsworth so beautifully expresses it, as he speaks of the

"Frail Snowdrops that together cling,
And nod their helmets, smitten by the wing
Of many a furious whirl-blast sweeping by."

Delighted as we are to have early flowers, one is almost disappointed to think that this chaste flower, so dear to all of us, is no longer entitled to the distinctions applied to it by the poets. She was the "firstborn of the year's delight," "harbinger of spring," and "pretty firstling of the year," and now these newer flowers conspire to sweep away this halo of honour.

But the time to speak at length of the Snowdrop has not yet come, and *Crocus hyemalis* claims a little more attention than it has hitherto received. Beautiful as are these *Crocus* species, it is well to warn the reader against thinking that they can vie in splendour with the products of the skill of the Dutch florist, and thus this species with its white flowers is not equal in some points to the fine white *Crocuses* *Reine Blanche* and *Mont Blanc*. *C. hyemalis* is not a showy species, but its period of flowering and hardiness will commend it to many. As I have previously indicated, the flowers are white, the inside of the petals being free from colour with the exception of a marking of yellow at the base; the outside of the outer petals is speckled with a deep black-purple—I am not sure that I should not say grained instead of speckled with long narrow spots, if this description is admissible. The tube is long, the anthers are black, and the stigma is, as an able writer remarks, like fine cut gold wire. Boissier is, I believe, the authority for the specific title. I have previously given a brief description of *Colchicum Decaisnei*, but so far as I can recollect have not spoken of *Merendera caucasica*. This little plant, with its flower rising only about an inch above the ground, seems to have been introduced from the Caucasus about 1823, and claims no fewer than three names—viz., *Merendera caucasica*, *Colchicum caucasicum*, and *Bulbocodium trigynum*, the latter name given by Adams being, I understand, later in point of time; the specific name *trigynum* being given either on account of the three-cornered looking keeled leaves, or the triangular manner in which they are arranged. The flowers are star-like in form, pale purple in colour, and prettily tinged with white towards the base of the petals. The keeled leaves are pointed and assume a partially twisted form. All these three bulbous plants require no particular care, growing freely in any good soil, but to prolong the period of bloom a small handlight, or a piece of glass put over the flowers, will be desirable in order to protect them from the storms of winter. February is the usual flowering period for the *Merendera*.

Evergreen plants add much to the interest of the rock garden in winter, and few are better adapted for the purpose of furnishing its slopes and terraces than the hardy Heaths. These are always acceptable, and doubly welcome at the present time is *Erica carnea* and its white variety *E. carnea alba*. In this neighbourhood they flower more or less through December and onward, and the

compact, deep green bushes dotted in the early season with their beautiful bead-like blooms are very pleasing, but in the latter part of the season their sprays of blossom are particularly beautiful. The name *Erica* is derived from *erico* or *ereico*, to break, and is said to have been applied in allusion to its fragile branches, but according to Paxton it was applied from some of the species being supposed to have the quality of breaking stone in the bladder. The name *carnea* is more appropriate than that of *herbacea*, which is sometimes applied to the plant, which is not at all herbaceous in its habit. The flesh coloured variety is vastly superior to the white, which produces its flowers much more sparsely. Peat is the most natural soil for these little Heaths, but sandy loam will grow them quite well. Another valuable property is the ease with which they may be transplanted at any time. *E. carnea* was introduced from Austria in 1763.

While a few other flowers are in bloom, among others being *Iberis stylosa*, a neat little flesh-coloured Candytuft, growing here only about an inch in height, it is not to be expected that many will face the cold winds now prevailing. When this is so one's eyes and thoughts are directed to other features of the plants, such as their foliage and their young growths. Going round my garden the other day I was particularly delighted to observe the beautiful appearance of the young leaves of a plant new to me—*Tellima affinis*. The young leaves, just through the ground, looked like some tiny parasol or miniature Mushroom or Toadstool, tinged with green and decorated with scalloped margins. I have admired the plant several times since, and always with increasing pleasure. This *Tellima* is described as having pure white *Lychnis*-like flowers, about a foot in height. The generic name is a curious example of the way in which botanical names are sometimes formed. The original genus was *Mitella*, a diminutive of *mitra*, a mitre, the fruit being somewhat mitre shaped. Robert Brown separated the genus *Tellima* from *Mitella*, the former name being an anagram of *Mitella*. The native habitats of all the species are in North America, and the most suitable soil is peat. The natural order is that of the *Saxifragaceæ*. If the flowers of *Tellima affinis* possess attractions equal to those of the young leaves or the curiously beautiful *Achimenes*-like coral-red roots the plant will prove an attractive one. The underground beauty of these little roots brings one in mind of the beauties and curiosities among roots and bulbs. We have gnarled-looking roots like those of the *Anemone*, curious tubers like the *Begonia*, and great beauty in the colouring of the outer coverings of the *Gladiolus* and other bulbs, besides the curious woolly coating under the skins of some *Tulips* and the exquisitely netted outer coatings of some of the reticulated *Iris*es; and so with these and other beauties before us if we take heed to Wordsworth's saying, "Come forth into the light of things, let Nature be your teacher," we shall pass through these winter days and enter into the joys of spring with hearts made more worthy to receive the treasures of the season.—S. ARNOTT.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

(Continued from page 27.)

THE experiments that have been hitherto made in combating the Potato disease have not proved very successful, and the results are altogether tantalising. In some cases the remedy has proved thoroughly effectual in securing the Potato against the scourge, and enhanced the quantity and quality of the crop; whilst in other cases, and those the majority, the dressing has not only failed to arrest the disease but actually caused the speedier collapse of the plants, and depreciated the produce, both as regards quantity and quality, more than the disease did on undressed plants. These results point conclusively to—1, The efficacy of the remedy when applied in proper form, at the right time, in an effective way. 2, The uselessness and power for harm of the remedy when applied in improper form, in a haphazard manner. Indeed, the inefficacy of the remedy is distinctly traceable to errors in compounding and mistakes in administering the preparation. Nor is that all, for there is so much empiricism and prejudice abroad with regard to the cause and treatment of the Potato disease, that remedies brought forward against it are not given a fair chance. Therefore, before proceeding to define the remedy, we may briefly describe the fungus causing the Potato disease, for without a knowledge of the malady to be combated it is impossible to prescribe for and treat it successfully.

The Potato fungus (*Phytophthora infestans*) is unquestionably one of the most fatal parasites to which the Potato is subject. In some years half or more of the Potato crop is destroyed by the disease, causing heavy losses to allotment holders and farmers. The fungus is spread over Western Europe, the Northern United States of America, and Canada. There is, therefore, no evading its

attacks, for the fungus is not only widespread, but is found on several plants of the order *Solanaceæ*, both wild and cultivated, and occasionally infects plants of the order *Scrophularineæ*. The spores are carried by the wind, in dry air only (though they have been detected in moist air over water), broadcast over the land, no one knows how far and wide. These "seeds" of disease, driven before the wind, settle in hollows, flat and damp places, and are caught freely on exuberant and crowded vegetation.

Thus the Potato plants in the hollows receive the most spores, and the tissue being rich, they produce a luxuriant crop of fungus. But the plants on the knolls not only receive the fewest spores, but their tissues are hard and dry, so that the spores of the fungus, finding so little moisture, germinate badly, and the tissues are so poor in nourishment as to produce a puny fungus. But there cannot be any Potato disease without *Phytophthora infestans* spores, suitable tissues, essential moisture and warmth, for these are necessary for the germination, growth of the seed, and the perfection of the fungus.

No means are yet known by which a plant can be made disease-proof. Manurial applications to the soil may and do, when taken into the system by the roots, so energise the protoplasm of the plant, strengthen its cell walls, and thicken and harden its epidermal tissues as to enable it to resist attack, or repel invasions, of the fungus. Yet we must not forget that the Woody Nightshade grows on walls—a mere pigmy of the type found in hedgerows—and that, though it can hardly collect sufficient nourishment in that position to become thrifty and produce berries, it supports a fungus—the dreaded *Phytophthora infestans*. Believers in the Potato fungus attacking Potato and Tomato plants only that are constitutionally weak or plethoric in habit, through disadvantageous climatic, soil, and cultural agencies, will take note of the fact that thrifty as is the Woody Nightshade growing on a wall it cannot resist becoming a host of the Potato fungus. *Schizanthus* plants grown in pots in the dry air of a greenhouse fall a prey to the parasite; and Tomatoes collapse by housefuls through attacks of the Potato fungus.

There is also another noteworthy fact—namely, that very little (if any) *Phytophthora* is found on Potato and Tomato plants before July, therefore we cannot admit the climatic doctrine, for Potatoes and Tomatoes grown under glass have climatic conditions more favourable to the fungus in January than outdoor plants are favoured with in July.

For the reasons specified we are bound to relinquish sheltering in predisposing causes, climatic influences, constitutional weakness, and heredity. Also, what is more to the point, such beliefs are fatal to inquiry. More, they postpone indefinitely the employment of those means imperatively necessary to preserve our Potato crops from the ravages of the Potato fungus. Attend by all means to those essential conditions of cultivation experience has proved best calculated to produce healthy plants and abundant yields in Potatoes; but let there be no trusting to the weather, make no mistake that the Potato fungus will recur as certainly as the seasons, and potent for mischief in all, more so in some years than others.

The appearance of the Potato disease is so well known that description would be needless were it not essential to a right comprehension of the fungus so as to combat it successfully. The attack of the fungus on a Potato or Tomato leaf is easily detected by the presence of a minute yellowish-green spot, passing rapidly into brown. This spot bears, on the under side of the leaf, a thin whitish coating on a watery-looking discoloured border round the spot. The whitish coating consists of erect, branched stalks, emerging through the stomate (breathing pore) in small groups, each stalk having a few branches bearing conidia near the tips. The erect stalks (conidiophores) spring from an abundant mass of mycelium (filaments) pervading the tissues of the leaf, ramifying between and lying in contact with the cells, abstracting their contents, and causing the leaf to decay. The mycelium spreads through all parts of the plant, lying in the intercellular spaces, boring through the cell walls, sucking the cells for nourishment by means of minute roots (haustoria) and soon destroying the plant, the diseased parts either drying up or becoming decayed.

The spread of the fungus is effected by means of the conidia, containing five zoospores inside. The conidia do not immediately reproduce the fungus, but in the presence of a dewdrop or rain-drop divides into five egg-shaped masses (zoospores), and these having each two hairs (cilia), which they can move, swim in a dewdrop, thus reaching a suitable part of the plant, and then pushing out tubes, each one on its own account, they enter by the tubes through the stomata into the interior of the plant and reproduce the fungus. The disease spreads rapidly, for the zoospores are not only set free by the conidia "bursting," but any movement of the infested plant by wind scatters the conidia all round, and the wind carries these seeds of disease nobody knows where, nor how far and

wide, when the air is dry, for they cannot float in still air and in wet weather. Thus a whole parish may be infested from a diseased allotment plot, and in a brief period the whole country becomes infested; thus dry weather scatters the spores. It does worse, for the ground cracks in drouthy weather—the badly worked soil, least tilth, gaping most; and the first rain that falls washes the conidia and the active zoospores into the soil, among the roots, and upon the tubers, and these soon become partly or wholly diseased, the fungus having a peculiar penchant for the starch grains concentrated in the tubers by the preceding dry weather. That is how Potato fungus comes by electric agency in thundery weather. Rain concentrates the forces of the fungus on the infected Potato crops—limits rather than spreads the disease.

Though the conidia [rather the zoospores], are so potent for mischief in warm weather, they cannot live beyond autumn. Then the mycelium produces "fruits" instead of conidia. Two bodies are produced—one, the oosphere, is globular, the fruit proper; the other the antheridium, oval and smaller, and this body comes to lie against the oosphere, sending into it a beak, piercing its wall, and fertilising its contents. This production of "fruits" takes place within the tissues of the diseased plants, the oosphere contracting after fertilisation, forming a thick warty outer coat, with a thin, elastic, inner lining, and in this protective coat, the "fruit"—the oosphere—frost and wet proof, passes the winter unchanged. But the oosphere may not always rest, for, when the sun has made the soil warm and the air genial, the globular body within the warty coat—like the insect that has passed the winter in pupa form—longs to be free, the warmth and the "soft glow of moisture" that prevail in Junetide causes the warty coat to crack, and the oosphere rises, floats in dry air, drifts, settles on a Potato or Tomato leaf, germinates in a dewdrop, pushes its germinal tube through a stomata into the tissues, and reproduces the fungus. There are the data upon which the Potato disease must be prevented or combated.

The sudden appearance of a "mould" on a plant was in former days, when observation was not minute and physiological research unknown, only intelligible on the hypothesis that the plant had in disease given rise to a new form of life—the "mould." Spallanzani first indicated the probability of these living things or their germs pre-existing in the atmosphere. Professor Tyndall demonstrated that the air does actually contain large quantities of minute organic bodies, and this explains why canned fruits keep for any number of years, the atmospheric air within its contents (germs producing decay) being excluded. Pasteur showed that the pebrine which ruined the silk trade of France by killing the caterpillars did not originate within, but was introduced into the caterpillar's body from without—a spore 1-6000th of an inch in length, growing, entering the caterpillar, producing and reproducing the disease called pebrine. These spores were named by Lebert *Panhistophyton*. They enter into the eggs of the moth; therefore the disease is contagious, infectious, hereditary. Founded on this analogy, it has been suggested that diseases in plants, like canker in Apple trees and epidemic in Potatoes, may be similarly explicable. There is, however, no evidence that plants are liable to constitutional diseases that are hereditary and transmissible in a manner analogous to the diseases of animals.—G. ABBEY.

(To be continued.)

BRITISH BOTANIC GARDENS.

An appendix to the "Kew Bulletin," just issued, contains lists of the officials in the chief National and University Botanic Gardens in Great Britain and Ireland; it also gives similar particulars with regard to the Colonial and Indian Botanic Gardens. The Home list is as follows:—

Royal Gardens, Kew.—Director, W. T. Thiselton Dyer, C.M.G., F.R.S., F.L.S. Assistant-Director, D. Morris, M.A., F.L.S. Assistants (Office), John Aikman and J. Buritt Davy. Keeper of Herbarium and Library, J. G. Baker, F.R.S., F.L.S. Principal Assistant, W. B. Hemsley, F.R.S., A.L.S. Mycologist, Dr. M. C. Cooke, M.A., A.L.S. Assistants (Herbarium), N. E. Brown, A.L.S.; R. A. Rolfe, A.L.S.; and C. H. Wright. Assistant for India, Dr. O. Stapf. Attendant, J. F. Jeffrey. Curator of Museums, John R. Jackson, A.L.S. Attendant, J. M. Hillier. Preparer, George Baddeley. Curator of the Gardens, George Nicholson, A.L.S. Assistant-Curator, William Watson. Foremen—Arboretum, William Truelove; Herbaceous Department, Daniel Dewar; Greenhouse and Ornamental Department, Frank Garrett; Temperate House (Sub-tropical Department), William J. Bean.

Cambridge.—University Botanic Garden: Professor, Charles C. Babington, F.R.S., F.L.S. Secretary to Botanic Garden Syndicate, Dr. Francis Darwin, F.R.S., F.L.S. Curator, Richard Irwin Lynch, A.L.S.

Dublin.—Royal Botanic Gardens, Glasnevin: Curator, Frederick W. Moore, Cor. Mem. R.H.S. Trinity College Botanic Gardens: Professor, Dr. E. Perceval Wright, F.L.S., Sec. R.I.A. Curator, F. W. Burbidge, M.A., F.L.S.

Edinburgh.—Royal Botanic Gardens: Regius Keeper, Dr. Isaac Bayley Balfour, F.R.S., F.L.S. Curator, Robert Lindsay, F.R.H.S.

Glasgow.—Royal Botanic Institution: University Professor, Dr. F. O. Bower, F.R.S., F.L.S. Curator, Robert Bullen, F.R.H.S.

Oxford.—University Botanic Garden: Professor, Dr. Sydney H. Vines, F.R.S., F.L.S. Curator, William Baker, F.R.H.S.



EVENTS OF THE WEEK.—As noted in another paragraph, the National Chrysanthemum Society have a special social gathering on Friday, January 22nd, in Anderton's Hotel. The annual dinner of the Fruiterers' Company will be held on Monday, January 25th, in the Hôtel Métropole, when the Lord Mayor is expected to take the chair.

— **THE BIRMINGHAM AND MIDLAND COUNTIES GARDENERS' IMPROVEMENT ASSOCIATION.**—The programme of lectures for the spring session of 1892 contains particulars of the silver medal offered by the *Journal of Horticulture* for an essay on manures, and the following announcements:—January 20th, "Apples, English, Production and Consumption," by Mr. J. Pope; February 3rd, "The Gloxinia, 1739 to 1892," by Mr. Jas. Martin of Messrs. Sutton & Sons; February 17th, "The Progress of Horticulture in the United States," by Mr. A. Outram (Messrs. B. S. Williams & Son); March 2nd, "Modern Gardening," by Mr. H. Dunkin; March 16th, "The Cultivation of Pears in Edgbaston," by F. M. Mole, Esq.; March 30th, "Spring Flowers," by E. J. Baillie, Esq.; and presentation of the silver medal above alluded to.

— **THE WEATHER IN THE METROPOLITAN DISTRICT** has been most variable during the past week. On several days sharp frosts were experienced alternating with dull wintry periods. Saturday was an exceptionally fine sunny day.

— **FOR** some weeks the WEATHER in SCOTLAND has been of a very wintry character. A snowstorm was general over the whole country, the fall in the northern counties being the heaviest that has occurred for several years, leading to the detention of trains, some of which stuck for a day or two in the drifts. In South Perthshire not more than 1½ inch of snow fell. The frost has been steady, and sometimes severe, 15° and 17° having been more than once recorded, 21° on one night lately. A cold thaw from E. has taken place.—B. D.

— **ROYAL METEOROLOGICAL SOCIETY.**—The annual general meeting of this Society will be held at 25, Great George Street, Westminster, on Wednesday, the 27th instant, at 7.15 P.M., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President (Mr. Baldwin Latham, M.Inst.C.E.) will deliver an address on "Evaporation and Condensation." The above meeting will be preceded by an ordinary meeting, which will commence at 7 p.m.

— **READING GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—The following is the programme of lectures for the spring session of 1892:—February 18th, "Gardeners and Gardening," by Mr. James Hudson; February 29th, "Flowers and Fruit *versus* Bees," by Mr. H. D. Woodley; March 23rd, "Germination," by Mr. F. Tufnail; April 11th, "The Stephanotis," by Mr. G. F. Coates, and "Management of Smaller Gardens," by Mr. T. Neve; April 25th, "Plant Improvement," by Mr. Lewis Castle.

— **MRS. ROBINSON KING CHRYSANTHEMUM.**—Mr. Lawton's remarks on the above Chrysanthemum rather go to confirm than to contradict the fact that Mr. Hotham is neither the raiser nor holder of a tenth part of the true stock. If Mr. Lawton has any confidence in his own statement he would substantiate it by offering a premium of £5 at the principal shows for every dozen blooms that can be exhibited which have been grown and cut from plants that were never in the possession of either Messrs. Hotham, Lawton, Blair, or Owen. My object in writing this is not to cast discredit on any of the above, but as the variety is offered by the trade generally it may be only fair to give "honour to whom honour is due," and let the public know the correct facts—that other vendors have purchased equally true stocks for distribution from sources as reliable and equal to those of Mr. Hotham's.—A. JONES, *Wavertree*.

— THE WEATHER IN 1891.—On page 22 in your last issue in my statement it appears that the total rainfall here was 20·07 inches. This is incorrect, as the figures should read 27·07 inches.—W. H. DIVERS.

— NATIONAL CHRYSANTHEMUM SOCIETY.—Several friends of the above Society, being desirous that an opportunity be afforded members of taking part in a social gathering, a smoking concert has been arranged to take place at Anderton's Hotel, Fleet Street, E.C., on Friday, 22nd January, 1892, at 7.30 P.M., Robert Ballantine, Esq., in the chair. Tickets of admission are fixed at the nominal charge of 6d. each, to cover the cost of hire of room, &c. Any surplus will be devoted to the special prize fund. Tickets can be obtained of any member of the Committee.

— FLORAL TRIBUTES FROM BELFAST.—A Belfast correspondent writes to us:—On Friday afternoon a very handsome design was forwarded to Sandringham House, addressed to Her Serene Highness the Princess Victoria Mary of Teck. It was in the form of an Irish harp, 4½ feet high, which rested on a base 2 feet high, and was surmounted by a crown of purple Violets. The golden strings of the harp were perfect excepting the third, which was broken, emblematical of the death of the third in succession to the throne. On Saturday night another magnificent cross was forwarded, addressed to H.R.H. the Princess of Wales; the cross was 6 feet high, attached to it was a card which bore the following inscription: "A token of humble affection and loyalty from the Ladies of Belfast." The principal flowers used in these two designs were Orchids, Roman Hyacinths, Lily of the Valley, Callas, Eucharis, Chrysanthemums, Camellias, and Rhododendrons. The harp was embellished with Asparagus plumosus and autumn tinted leaves; the cross with Asparagus, Adiantum cuneatum, and Myrtle. Both designs reflect great credit on the artistes of the firm of Mr. S. McDuff, City Florists, Belfast, where they were made.

— BRIGHTON AND SUSSEX NEW HORTICULTURAL AND MUTUAL IMPROVEMENT SOCIETY.—Notwithstanding the wintry weather and the extraordinary amount of illness a fair number of members of the above Society met at the Imperial Hotel, Queen's Road, to hear a paper on "Gardeners and Gardening" contributed by Mr. J. Hudson of Gunnersbury House. Mr. Hudson travelled to Brighton suffering from a severe cold, and was glad to accept the services of Mr. Lewis to read his paper for him. It was very interesting, full of sound advice, both for old and young gardeners in the various and often difficult positions they find themselves placed. In tracing the rapid strides that horticulture has made during the past fifty years Mr. Hudson regarded the introduction of steam power as one of the first importance in giving us rapid communications all over the world, bringing us choice plants which otherwise could never have reached our shores alive. Our railway system brought wealth and prosperity to all classes, giving them the means of indulging in the refining pursuit of horticulture. In referring to young lads paying premiums on entering our gardens the system was condemned as most mischievous. At the close of the paper an interesting discussion took place, in which Mr. R. Miller (in the chair), Mr. J. Bunny, Mr. Spottiswood, and Mr. J. Cheal took part. A hearty vote of thanks was accorded to Mr. Hudson.

— GARDENERS' ORPHAN FUND.—The following "Appeal for the Orphans" is being distributed amongst the members of the Birmingham and Midland Counties Gardeners' Mutual Improvement Association by Mr. J. Hughes, the Honorary Secretary:—"At a general meeting of the Committee of your Association on January 14th, 1890, it was unanimously resolved that an annual appeal should be made to the whole of the members for small contributions in aid of the Gardeners' Orphan Fund, and that the amount so raised shall be sent as a contribution from the members as a body. The smallest contribution will therefore be most thankfully received at the general meeting on February 3rd, and as it is not the intention of your Secretary or Committee to appeal to you again in this year of 1892, it is requested that those members who find it impossible or inconvenient to attend on that occasion, will kindly send their contributions to the Secretary on or before that date. As the orphan of one of our late members has been elected on the funds, who is now receiving and will, if necessary, continue to receive 5s. per week for the next nine years, it is the earnest wish of all concerned that the amount so raised shall be in proportion to the numerical strength and importance of the Gardeners' Association of the City of Birmingham and the surrounding district, thereby assisting to supply the means for further extending the blessing of this noble Institution."

— THE enormous SPECIMEN OF CATTLEYA LABIATA (the gift of Messrs. F. Sander & Co., St. Albans, for the benefit of the Gardeners' Orphan Fund) was sold by auction at Messrs. Protheroe & Morris's Rooms on Friday last, Jan. 15th, for the sum of 50 guineas. This wonderful specimen had about 250 pseudo-bulbs, with many sheaths ready to bloom, and measured probably over 3 feet. Messrs. Protheroe and Morris kindly consented not to charge commission on the sale of this plant.

— THE INTERNATIONAL FRUIT SHOW.—On Thursday, January 14th, the Provisional Committee appointed to prepare a scheme for the proposed International Fruit Show in London during 1892, met at the Cannon Street Hotel, Sir James Whitehead, Bart., in the chair, and nine members were present. After some discussion with regard to preliminary matters, Sub-Committees were appointed to consider the constitution of, and suggest names for a General Committee, to select officers, and to report as to the best available site for the Exhibition.

— "THE FRUIT GROWER'S GUIDE."—It has come to the knowledge of the author of this work, which is being issued in monthly parts by Messrs. J. S. Virtue & Co., that some canvasser of the firm represents he is working under the auspices of the Royal Horticultural Society, and stating that subscribers for the work will in consequence become members of the Society. Surely such transparent foolishness cannot deceive persons of ordinary intelligence; but, all the same, the author of the work, Mr. J. Wright, desires to express his strong disapproval of the practice referred to. The work is illustrated with coloured plates by Miss May Rivers, and her father, Mr. T. Francis Rivers, is equally with Mr. Wright annoyed by the conduct of the canvasser in question, whose name will be forwarded to Messrs. Virtue & Co.

— PROPOSED SCHEME FOR TECHNICAL EDUCATION IN GARDENING.—I read with interest in the last issue of the Journal the reprint of a leaflet issued by the Royal Horticultural Society *re* above, and without question the necessity for such a scheme was never greater than at present, but whether it will prove to be successful remains to be seen. Personally I am of opinion that under the conditions set forth many would-be students (especially from the provinces) would be debarred from receiving the benefits of such a school on account of the charge made for boarders—viz., £45 per annum, which from one point of view cannot be called excessive; but to the man that has four or five children to bring up and educate it requires attentive consideration. Assuming the course to be three years he must dole out in hard cash the sum of £135, and that sum, to the class of people that the bulk of our gardeners emanate from, means years of toil and thrift. I should like to know the opinion of others that may feel interested in the matter.—WORKING GARDENER.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, during the year 1891, 56 feet above mean sea level.—Mean temperature of the year, 46·8°. Maximum on 10th Sept., 80·6°; minimum on 18th Jan., 6·7°. Maximum in the sun on the 24th June, 135·9°; minimum on the grass on the 19th Jan., 2·4°. Mean temperature of the air at 9 A.M., 46·8°; mean temperature of the soil 1 foot deep, 47·3°. Number of nights below 32° in shade, 101; on grass, 167. Sunshine, total duration in year 1115 hours, or 25 per cent. of possible duration; we had eighty-two sunless days. Highest reading of barometer on 31st Oct., 30·731; and the lowest, on 11th Nov., 28·325. Total rainfall 26·7 inches; maximum fall in twenty-four hours on 4th June 1·53 inch. Rain fell on 195 days. Average velocity of wind 9·7 miles per hour. Velocity exceeded 400 miles on forty-five days, and fell short of 100 miles on sixty-eight days. Approximate averages for the year:—Mean temperature, 47·9°; sunshine, 122·7; rainfall, 24·54 inches. The year 1891 was cold, dull, and rather wet. It commenced with a long frost in January, followed by a nearly rainless February. The spring was cold, dry, and very late. The summer was cold, dull, and rather wet. September was the best month of the year—fine, warm, and dry just when it was wanted for harvest. The autumn was wet and stormy, with one week of very sharp cold just before Christmas. The mean temperature, 46·8°, is about 1° below the average. Three months were very cold (January, April, and May), four were cold (March, July, August, and November), while September was the only warm one, and it was only in this month that any reading above 80° were recorded. Rainfall was deficient during the earlier part of the year, but in excess during the latter part. February was exceptionally dry, and September was dry. On the other hand, May, June, October, and December were wet. The total fall for the year, 26·7 inches, is about 2 inches above the average, and the

number of days on which it fell was also larger than usual. Sunshine was deficient throughout the summer, but was in excess in September and in the winter months. The brightest month was September, when the sun shone for 33 per cent. of the time it was above horizon, and the duller was November, when the percentage was only 12°. The total for the year is 112 hours below the average.—JOSEPH MALLENDER.

— DEATH OF MR. W. H. FITCH.—We hear with regret that the noted botanical artist, Mr. W. H. Fitch, died at Kew on January 14th last. Mr. Fitch was born at Paisley, and served as Assistant to Sir William Hooker in Glasgow, subsequently coming with him to Kew in 1841. From that time until 1885 he illustrated all the important works issued from Kew, with some others, of which the principal were Hooker's "Flora Antarctica," in six volumes, 4to.; "Himalayan Plants," "Himalayan Rhododendrons," "Icones Plantarum" from the commencement in 1837, Bateman's "Odontoglossums," Warner's "Select Orchidaceous Plants," Elwes' "Lilies," Saunders' "Refugium Botanicum," "Flora Vitiensis," "Botany of the 'Herald,'" Speke's and Grant's plants; the Linnean Society's Transactions and Journal. In recognition of his services Mr. Fitch was granted a pension of £100 per annum a few years ago.

— IT will be learned with regret that the unexpected death of MR. BENJAMIN COOMBE occurred at Victoria, Texas, U.S.A., on December 16th. Although comparatively a young man he had passed through several of the large nurseries, and held responsible charges in some of the best private establishments, including Chatsworth, Stancliff, and Aldebrook, which latter situation as head gardener he relinquished to take charge of the estate of Senor Dorado, Buenos Ayres, but owing to the revolutionary troubles he returned home, and had gone out again to Texas with the view to acquire a nursery business there, when the fever attacked him, and from which, after a short illness, he died. His strict integrity and unvarying urbanity gained him the respect and affectionate regard of all whom he came in contact with, and the fact of his untimely death will be keenly felt by a large circle of gardening friends.

— THE OLDEST LIVING FLORIST.—The American *Florists' Exchange* says:—No doubt Mr. Zacharias Werney is the oldest living florist in the world. He is reported to have been born October 12th, 1790, in Halberstadt, Germany. He is now 101 years old, and, considering this unusual age, in pretty good health. On the occasion of his birthday, 12th October last, he was the recipient of many gifts from high officials in Germany, and the city of his birth made the day one of festivity and a general holiday; for Mr. Werney was not only a benefactor to his fellow man, by planning and planting the large Harmonie-garten of the city of Halberstadt, but he was also a soldier, and fought for his country in 1813. He was reported dead, and his name was carved on the marble slabs which hang in a church, and on which are all the names of those who have fallen in battle for their country. But in 1816 he returned home, to the surprise of his people. The name has never been taken from the slabs, and up to this day it still remains. Mr. Werney has been successful in his calling, and in consequence has been living for many years in a quiet way, satisfied that he had done his utmost, and enjoying the esteem and goodwill of fellow townsmen.

— GARDENING APPOINTMENTS.—The following appointments have been recently made through Messrs. John Laing & Sons, The Nurseries, Forest Hill, S.E. Mr. W. Chisholm as head gardener to J. H. Sanders, Esq., Porters Park, Shenley, Herts; Mr. Wakefield as head gardener to C. S. Bass, Esq., Round Hill House, Sydenham; Mr. Young as head gardener to Sir Lewis Cave, The Manor House, Woodmansterne, Epsom; Mr. Lemaire as head gardener to W. Niven, Esq., Carswell Manor, Faringdon, Berks; and Mr. Jas. Thorne as head gardener to W. G. Nelson, Esq., Woodford Road, Snaresbrook, Essex. Mr. Henry Purser, gardener to Lord Zouche, Ravenhill, Rugeley, is about to take charge of his Lordship's gardens at Parham Park, Pulborough, Sussex, Ravenhill being let. Mr. W. H. Jones, late gardener to Ephraim Hallam, Esq., Oakwood Hall, Romiley, has been appointed gardener to Wm. Brockbank, Esq., Brockhurst, Didsbury, Manchester. Messrs. William Cutbush & Son inform us that Mr. King, late gardener at Glenchess, Loudwater, Rickmansworth, has been appointed gardener and bailiff to M. Jenks, Esq., Cannins Park, Edgware. Mr. J. Doe, late head gardener to H. W. Tugwell, Esq., Crowe Hall, Bath, has been appointed head gardener to H. O. Wills, Esq., Kelston Knoll, near Bath. Mr. J. T. Bant, foreman under Mr. H. Dunkin at Warwick Castle, has been appointed gardener to James Booth, Esq., Rowington Hall, near Warwick.

— CELERY AND THE FROSTS.—The ridges of soil banked up against the rows of Celery were so badly saturated with moisture that the late December frosts penetrated to a great depth, or nearly down to the roots. When the Celery had to be lifted while the frost lasted, the soil moved in immense masses, a pickaxe being needed to break it up. This very unusual occurrence was very rough on the Celery, and any grown to a great size suffered badly. Already very many of the hearts are completely decayed, and it is scarcely possible to say which are sound and which are not without cutting them open. The later rows not being grown so strongly appear to be sound enough at the heart at present, but the outer stalks have been much crippled, and I shall be surprised if we have good Celery as late as April and May this season.—M. H., Somerset.

— THE most recent issue of *Kew Bulletin* contains articles and correspondence referring to the "Chinese Fibres," "The Ipoh Poison of the Malay Peninsula," the produce of *Antiaris toxicaria*; "The Botany of the Gambia Delimitation Commission," and a series of miscellaneous notes, chiefly news, relating to Kew Gardens, the receipt of additions to the Herbarium, and general items of interest. From these we extract the following:—"In connection with the botanical collections made by Mr. Antwerp E. Pratt, in Western China and Eastern Thibet, at elevations of 9000 to 13,500 feet, the Principal Assistant in the Herbarium, Mr. Hemsley, F.R.S., has visited Paris in order to study the novelties collected by Prince Henry of Orleans and published by Professor Bureau and Mr. Franchet. A considerable number of Mr. Pratt's plants proved to be the same, yet the number of different species was even larger. These will be published as soon as possible. The keeper of the Herbarium, Mr. Baker, has lately proceeded to the Riviera to examine the fine collections of Yucca, Aloe, Agave, Dasylirion, &c., growing in the gardens of Mr. Thomas Hanbury, F.L.S., at La Mortola, near Mentone, and others. Mr. Baker has long made a special study of this class of plants, and his visit has proved very instructive. A detailed report of the results will appear in a future number of the *Bulletin*. An interesting series of apparatus and implements connected with the Gambier industry (*Uncaria Gambier*, *Rowb.*) of the Straits Settlements has been received from Mr. H. N. Ridley, F.L.S., Director of the Gardens and Forest Department, Singapore. It includes a model of a Gambier factory, with the following implements used in the cultivation and manufacture of Gambier."

— IMPORTED FRUITS.—A firm of salesmen in Covent Garden Market writes as follows in a London daily paper, "About twelve months ago a writer in alluding to Peaches remarked that not for ten times their weight in gold could Peaches be delivered on the London market in the month of January, yet in the following week we ourselves had some Peaches from the Cape, and we are expecting large consignments here very shortly. Last week the first Apricots from Cape Town came forward. With regard to vegetables, we would remark that they have never been sold so cheap in the winter months as during the past four or five years. The immense tracts of land under cultivation in and around all large towns with vegetables of every description has brought forward a supply equal to the demand, at low prices; and unless something exceptional occurs—very severe weather in winter or long droughts in summer—dear vegetables are a thing of the past. The bulk of the Tomatoes are now coming from the Canary Islands. Although it is now midwinter we are receiving from fifty to 100 tons of Tomatoes every week. This quantity will continue to increase from there and from ports of the Mediterranean until about June, when the supplies from Spain alone reach about 2000 tons per week. Later on our supplies come from France in very large quantities, which are sold to the public at about 3d. to 4d. per lb., and still leave a profit to all concerned. Fruit and vegetables may be sold dear in certain parts of London, partly because customers in those districts insist upon having the very best of everything, and partly because the trade not being always steady some of the goods have to be spoiled. Outside of those districts goods can be had cheaply in most of the large retail establishments. Ordinary fruit and vegetables have never been sold cheaper than they are at the present time. Foreign produce has been sold by auction in Covent Garden now for some thirty years. We believe the time is not far off when the bulk of the English fruit will have to be sold by auction. Only on one occasion previously have we had so many American Apples as have been received here this year. The total shipments to this country to the end of last month (in round numbers) was about 2,940,000 bushels, the whole of which have sold at fair prices considering the large quantity, and the consumption has arisen entirely through their excellent quality."

— NATIONAL ROSE SOCIETY.—A meeting of the Committee of the National Rose Society was held in the rooms of the Horticultural Club, Hotel Windsor, Westminster, on Tuesday, the 19th inst., Dr. Robert Hogg in the chair. The schedules of the Crystal Palace and of the Chester Shows were approved and adopted. All fourth prizes were abolished in both schedules.

— INSECTS IN HERBARIA.—In the new number of *Insect Life* Dr. C. V. Riley directs attention to what he calls a new herbarium pest. In September, 1890, a number of small Geometrid larvæ were found by the botanists of the U.S. Department of Agriculture infesting certain dried plants in the Department herbarium, and especially those which had been received from Mexico and Lower California. The fact that the insect has appeared on dry plants from the comparatively arid western regions may, Dr. Riley thinks, furnish a clue to its original habit. It would seem possible, if not probable, that it normally feeds on the dead or dry plants of Mexico and adjacent arid regions, and that it has simply adapted itself to the somewhat similar conditions prevailing in herbaria. It is a new species, and for the present may be placed in the *Acidalinæ*.—(Nature.)

— MR. W. T. ROBERTSON gives in the October number of the *Agricultural Gazette of New South Wales* a clear and interesting account of the cultivation and manufacture of Tea. The object of the paper is to supply the farmers of New South Wales with information which they may be able to turn to practical advantage. Mr. Robertson does not think that the colony can ever manufacture sufficiently large quantities of Tea to put it in a position to compete with China, India, and Ceylon. He sees no reason, however, why the industry should not be conducted on a modest scale. A farmer with children could utilise their labour in the plucking and the light work in manufacture, while the heavier he could undertake himself. If the owner had, say, an acre under cultivation, it would probably bring him in 300 lbs. of made Tea per annum—enough for his own consumption, with a surplus which he could dispose of at a good profit.—(Nature.)

— THE TRAVELS OF WEEDS.—In many parts in eastern United States a small Mexican weed belonging to the order of Compositæ, called *Galinsoga parviflora*, is now extremely plentiful. It is also making headway in the Old World. The foliage has a resemblance to the *Ageratum*, well known in gardens. The flowers are very small, the disc being yellow, and have five small ray petals. It is strange to find a tropical plant thriving well so far north. It is destroyed by the first white frost, but as the seeds are not injured by the extremest cold the plant is able to maintain its existence wherever it is able to mature its seed in summer time. It is for this reason that so many other tropical weeds, such as the Jamestown weed, or *Stramonium*, is able to extend itself. This is another tropical weed. The *Balsam*, *Impatiens fulva*, although spread over the whole North American Continent, even penetrating the Arctic circle, was no doubt originally a tropical plant extending in the same manner as those we have referred to. Destroyed as they are very easily by frost, the seeds yet enable them to travel far into northern regions.—(Meehan's Monthly.)

— THE ANCIENT SOCIETY OF YORK FLORISTS.—The annual meeting of the members of this Society was held on the 14th inst. at the Victoria Hall, Mr. W. C. Milburn occupying the chair. There was a large attendance. The Secretary, Mr. J. Lazenby, read the report for the year, stating that the Committee deeply regretted the death of one of the Vice-Presidents, the late Mr. Alderman Matthews, Lord Mayor of York, who was a consistent supporter of the Society for over twenty years. The balance-sheet, already issued, shows that the tide of prosperity was flowing. The gross income reached £620. The expenditure, although necessarily larger than hitherto—viz., £445, consequent upon the growing character of the Society's transactions, left a balance to the Society's credit of £175. There had been a net increase of thirty new members during the year. The Summer Shows in the Guildhall continued to be much appreciated by the public, and the exhibitors increased in number. The Chrysanthemum Show was perhaps the most successful the Society had held. It was visited by about 10,000 persons, and the receipts exceeded those of the previous year by about £30. Competitors were again numerous, and some of the best cultivators in the kingdom entered the lists. Mr. G. F. Pillmore congratulated the Committee on the very favourable report they had been able to present, and he moved its adoption. Carried. The following officers were chosen to serve for the year:—President, Alderman Sir Joseph Terry; Vice-Presidents, the Lord Mayor (Alderman Close), the City Sheriff (Councillor Foster), and Mr. McIntosh; Junior

Steward, Mr. W. R. Robinson; Secretary, Mr. John Lazenby; Treasurer, Mr. Fielden; and a Committee of eighteen members. The officials were heartily thanked for their services and support, especial reference being made to the generosity and goodwill of Sir Joseph Terry towards the Society. Votes of thanks were also passed to the donors of special prizes, and the following grants were made:—For the minor shows of the year, £50; for the Chrysanthemum Show, £130. The 16th, 17th, and 18th of November were the days fixed for the latter.

TUBEROUS ROOTED BEGONIAS.

MUCH has been written on this charming summer and autumn flowering plant, but I am yet of opinion that there are many who have not quite mastered the art of raising and flowering the Tuberous Begonia in one year. I will try and describe how I have found them succeed best; for hints in connection with the system adopted I am indebted to one of the best private growers in the West of England—namely, Mr. Smith of Henbury Hill Gardens, Westbury-on Trym.

SOWING THE SEED.—The seed should be sown in January or February, in clean shallow pans or boxes. If the former see that the rim is quite level; if not it can be easily accomplished by rubbing it for a few seconds on a wet flat stone, this being done so that a sheet of glass can be put on the pan or box to fit quite close, to exclude all air and prevent evaporation. Having done this drain the pans or boxes carefully, by placing one good crock over each hole, then half filling with smaller crocks or clean cinders, place a little rough material over this to prevent the finer soil trickling amongst the drainage. Now for soil. Take three parts leaf soil and one part fibrous loam, rubbing the whole through a half-inch sieve, and thoroughly mix it, but on no account add sand. Before using this mixture make it quite hot without actually burning it, this being done to kill any insects there may be in it. Fill the box or pan to within three-quarters of an inch of the top, then give a good soaking with hot water through a fine rose, and as soon as the water has passed through sow the seed on the surface, care being taken not to sow it too thickly, then cover with a sheet of glass as before mentioned, and place in a temperature of 65°. The seed will germinate in about eight or nine days; the growth must then be watched very closely, giving all the light possible, but shade from bright sunshine, and avoid a dry atmosphere, which is very detrimental to the well-being of the Begonia throughout. Admit a little air gradually by tilting the glass from one side of the pan or box, increasing it as the seedlings strengthen, and in about ten or twelve days the glass may be removed at night. I prefer putting it on by day until the seedlings have made their first rough leaf, as by so doing it keeps a suitably moist atmosphere about the plants which they much enjoy. I would next advise that the seedlings should be moistened with a fine spray from the syringe at least once every day.

When the first leaf other than the seed leaves are about the size of a threepenny piece they should be carefully pricked off about 2 inches apart each way in shallow boxes, using similar soil to that advised for sowing, with the addition of a little coarse sand; fill to within half an inch of the top. After transplanting keep them close for a few days by again placing the sheets of glass over them, and the young plants will then soon take root in the fresh soil, after which keep them 5° cooler, and dispose them close to the glass to prevent drawing; according as the seedlings grow keep them cooler, and by the first week in April they will be strong sturdy plants.

I advise those who want good flowering plants the first season to plant them out in frames, affording about 1 foot of fermenting material to give a little warmth to start the plants briskly. They should be planted in soil consisting of equal parts of loam and flaky leaf soil, and at a distance of 8 inches apart each way. Keep them close until started, and spray with the syringe twice a day in fine weather, shading from bright sunshine, slightly damping the plants about three o'clock in the afternoon, and close the frame. No sun will hurt them after this time if the frame be closed. Air must be increased as the weather becomes warmer until the lights can be left off all night. If this be carefully carried out good plants will be ready for planting out in the flower beds in June, or they may be left in the frames for lifting in August for autumn flowering in pots. I have raised and grown from seed plants that have filled 8-inch pots in one season—GEO. WEST, *Marston Gardens*.

IXORA DUFFI.

At the Edinburgh International Exhibition, in September last, Mr. W. Finch, gardener to J. Marriott, Esq., Queen's Road, Coventry, exhibited a wonderfully fine specimen of *Ixora Duffi*, to which was awarded the Veitch Memorial prize and medal, offered for the best stove

or greenhouse plant in the Show. It was the centre attraction amongst the plants, and many were the admiring comments passed upon so well-grown a specimen. In height it was over 5 feet from the pot,

The plant is one of Messrs. J. Veitch & Sons' novelties of about fourteen years ago, being obtained from Halan and Strong Island, one of the Caroline group in the Pacific Ocean, and was discovered by Mr



FIG. 7.—IXORA DUFFII.

bushy in habit, and clothed with its long dark leaves down to the rim of the pot, whilst it was bearing twenty huge globular trusses of its brilliant flowers. As an exhibition plant it could not be surpassed, and it is very distinct from all the other species and varieties in cultivation.

Duff, one of the staff attached to the Sydney Botanic Garden to which place it was first introduced, and thence it was sent to this country by Mr. Charles Moore.

The flowers are in the style of *I. salicifolia*, the trusses being very

large, of a rich vermilion shade, the tube being extremely long. The plant requires stove treatment, and succeeds with the culture accorded to other *Ixoras*.

PENTSTEMONS AND THE LATE MR. GAVIN GREENSHIELDS.

WHAT a pity it is that we never know when a genius is born. Could we tell that how much could the poorest parent do, by guidance and education, to pave the way for the march of the coming man, so that he might commence his work at once, while all his powers would reach their highest development, and not be stunted and degraded by unsuitable upbringing. Alas! too often our great men live out their days fighting an uphill battle, and all they can do is by a snatch effort at odd times, just sufficient to show what might have been done had circumstances been better ordered. Then in addition to a bad start, how vexatious it is to think of a good man fighting his way in the worst conceivable country for the display of whatever peculiar greatness was possible to him.

Gavin Greenshields was a perfect illustration of the truth of these remarks, for in his case all the aids to advancement were absent. He was late in commencing the growth of flowers, and the situation of his garden was one of the worst I ever saw from which to expect the best results. To come to the front as he did at Glasgow flower shows was a proud feat indeed had he lived in Rothesay or in the Vale of Leven, places admirably adapted to the highest floricultural excellence; but to a dweller in a cold moorland district, between the uplands of Clyde and Tweed, it was actually a marvellous thing for him to wrest the prizes from his more suitably located competitors. Indomitable spirit, combined with burning enthusiasm, untiring labour, and a true genius for floriculture, to direct work and to overcome difficulties of climate and soil, were the causes which led to his remarkable success.

He was born in 1822, and had an ordinary Scotch lad's education at the parish school, but the best thing he learned was the desire for learning. This went with him through life, and few ever conversed with him without being astonished at his breadth and depth of reading, and the keen use he could make of it in controversy. As a blacksmith in the parish of Newlands, Peeblesshire, he was not content with mere routine work, but would undertake anything however difficult, and soon became the best horse-shoer in the neighbourhood, while he would repair a gun as if to the manner born. An intricate lock was a mechanical tit-bit to him, and no matter what was wanted to be done his mechanical skill would master it in due time. Then he became so expert in curing the diseases of cattle that he was greatly in request as a local veterinary surgeon. The Stevenstone blacksmith became renowned as a handy man, who could do almost anything at his trade, while his favourite recreation for a while was fishing, and as an angler he was as keen as an otter over a good pool; while as a fisher he threw "a beautiful fly." If the trout were shy he could sit down on a mossy dell and admire the wild flowers by the river; and eventually the flowers reached his heart, so that mere fishing was not all in all to him.

Looking around his home he could see no site fit for a garden, but undeterred by obstacles, he set to work and rooted out old scrub trees from a stone quarry and began to plant green Kale, &c., to clean the place of weeds. Soon his neighbour gardeners delighted to help "the smith," and bits of flowers were set in crannies and obscure corners until he felt the inward stirrings of the "old Adam," the great original gardener, and went into his new hobby with all his powers and in the very spite of his surroundings. His *début* as a competitor took place at Peebles Flower Show, and as he drove home in triumph through the "auld toon" he was greeted by cheers, as if all Peebles rejoiced with him. The cause of the uproar was that a wag of a friend had tied his six prize tickets on a string, and here behind him, fluttering in the air, were the proofs of his skill.

When about thirty years of age he removed to his native village of Broughton in Peeblesshire. Here, pleasantly situated on a tributary of the Tweed, called Biggar Water, he had more companions of a like spirit to his own, and had a fairly good garden. While hard at business he yet, in his odd hours, found time to increase his stock of flowers, and, with others, founded the Broughton Horticultural Society, which soon became well known as a keen local show, and has been held every year for the last thirty years.

About the year 1867 Mr. Greenshield's health became impaired, and he found it necessary to give up his business as a blacksmith. The strength of his character, self-reliant, and conscious of being able to succeed at what he took in hand, was shown by the move he made. Near the railway station he built a house (Thornbank) and commenced life anew as a grocer. All his flowers were placed in a

new garden, which unfortunately was not of the best quality in any respect. Soil was stony, with a sharp slope, and of course subject to drought. To counterbalance these drawbacks he had more leisure, and could work or leave it alone, as weather or health allowed. He was too active minded to be idle, and his devotion to flowers was so keen as to overcome by one resource or another the drawbacks of situation. At Thornbank he really earned his fame. Here he became famous, and many a friend found him out in his retreat, and his house became an upland shrine, to which florists, anglers, poets, and literary men from Glasgow and other towns loved to visit, for however fine the garden, however good the trouting, the genial kindly laird was more himself than other interests together.

At this time he turned his attention to herbaceous plants, and soon acquired a most varied and interesting stock of them. His ungenial soil grew them better than Pansies or Sweet Williams, as these invariably died every winter with him, whereas the herbaceous kinds succeeded. Delphiniums were to him specially pleasing, and came to high perfection. Early Phloxes would not grow, but his late ones did splendidly, and for years he took the first prize for these at Glasgow shows. Then he took to a good strain of Pentstemons raised from French varieties, and which had been improved by our Edinburgh and Rothesay seedsmen.

For the last fifteen years of his life Pentstemons were his great hobby. Saving the seed of the best spikes he raised scores of seedlings, and exercised an amount of discrimination in his selection of these which is hard to put in practice. No slight variation from a named variety was allowed to pass. His taste was well defined, and chose dark, well-marked throated forms, with long spikes, closely set bells, each flower large, open, and symmetrical. An indistinct colour he could not tolerate. Over a good bloom, on a well-built spike, and fine dark colours he would pause and become enraptured. He had not a straggly grower in his collection, nor a seedling that was not superior to its parents. Because he had raised it was not an argument sufficient to retain a middle-class variety. He strove for perfection, and would be satisfied with no less, while his unerring judgment was decisive. Nurserymen like Mr. Dobbie of Rothesay were glad to have his verdict as to the quality of their stock, so that his powers as a judge were universally acknowledged. To all he saw he brought a "clean eye." No bias turned a defective flower into a perfect one, whether it was his own or another's. He spoke sharp out like a true man, and if contradicted gave reasons for his judgment of a kind that carried conviction home.

For some years he had no equal competing against him for the Pentstemon prize at Glasgow. Always around his stand the keen florists were grouped, as they knew whatever was worth seeing would be there exhibited. His seedlings were sought after by nurserymen, and glad were they to be able to insert in their catalogues such varieties as Annie, Mrs. Cameron, The Provost, The Giant, and others. There is a beautiful little dwarf variety (raiser unknown) which was named in his honour—Gavin Greenshields. To many friends this little gem will be an "in memoriam" of a much respected and valued friend, whose ever kindly welcome and hearty grasp of the hand will never more greet them at Thornbank.

A few years before he died he took up the Auricula. Obtaining good plants, saving the seed, he raised many seedlings of merit, but never named them. He had the rare knack of having his plants in their very best condition on the show day, and was of course wonderfully successful as a prizewinner.

In 1889 that fell disease cancer attacked him, and though he had consented to act as judge that year at several shows he was unable to officiate, to the general regret "of troops of friends." For a year he lingered, suffering severely, but bearing his burden like the strong souled man he was. He passed away on 28th March, 1890. His wife had predeceased him, but he left eight of a family to mourn his loss. The spring was opening; but not for him the Primrose prophesied the coming summer, or the carol of the birds he so enjoyed foretold the pleasant days to be when the trout leaped in the pools, and the friends he held dear would be wending their ways to the banks of Biggar Water. His work was done, manfully done too, through many disadvantages, and now we realise his loss, the floral world seems bereft of a bright ornament, and progress a helper we feel could be ill-spared.

It is so far cheering to know that others have taken up his enthusiasm, especially for Pentstemon culture, and that Mr. Tom Robertson at Thornliebank, and Mr. Robert McIntosh, Hutchesontown Gardens, Glasgow, are in full possession of the best varieties he left behind him, while Mr. Dippie at Caldwell has struck in with a power and skill coupled with garden advantages of the very highest kind for the raising of seedling Pentstemons, which all go to assure us that the future of the flower is not to be yet measured by what has been done.

With amateurs like these working in the spirit which animated Mr. Greenshields, and with trained nurserymen like Mr. Downie of Edinburgh, also interested in the culture of this lovely flower, and to which latter all florists' thanks are due for his life-long labours in the development of our best florists' flowers, we may rest in expectation that year by year we will see progress made in *Pentstemon* culture.—ALEXANDER SWEET.

SIMPLE FACTS ABOUT TOP-DRESSING.

INQUIRIES relative to Vines and Vine borders are continually being made, and doubtless will be as long as the amateur delights in tending his vinery, or the wealthy require a good supply of Grapes from their more extensive vineries. In consequence of the great interest in Vine growing having been thus maintained for many years past, almost every conceivable method of cultivation has been thrashed out in the pages of the *Journal of Horticulture*, many of those highly instructive articles being penned by eminent cultivators, who have been as well known for the excellence of the produce staged by them at the leading horticultural shows as for the freedom with which they described their method of procedure. Yet it is a well known fact that some of those who have achieved phenomenal successes are directly opposed to each other concerning the means they adopt to attain the same end. This conflict of opinion is, no doubt, somewhat embarrassing to casual observers; but if the greatly varying circumstances under which each cultivator conducted his operations could always be put quite clearly before readers, much that is apparently incongruous would, in many cases, be better understood.

Take, for instance, the excellent practice of top-dressing Vine borders annually. Many cultivators place implicit faith in the practice, while others consider the performance of it of little consequence, averring that they have seen but few beneficial results which could be directly traced to periodical top-dressings. As far as my observation goes there are hundreds of Vines which receive no benefit from the practice, not because the system is at fault, but for the simple reason that the carefully prepared soil which is spread so evenly upon the surface of the Vine borders only comes in contact with a few stray roots, the majority of them having wandered in search of food not found in a palatable form near the surface; and so long as an unsuitable mass of material remains between the roots and the rich top-dressings it is a difficult matter to induce the roots to come upwards to it. Once place fresh healthy soil near good roots, they will quickly appropriate such necessary food, and become ten times more active. In many cases the Vines, being planted in wide deep borders, ramble freely in all directions for the first few years, while the compost is rich and sweet, no especial trouble being taken to keep the roots near the surface. They frequently penetrate far deeper than is good for their ultimate benefit, as after a few years the bulk of fibry roots are at the extremity of the border or deep down in the subsoil. The consequence is, the Vines gradually get into an unsatisfactory state through sluggish root action, and it frequently happens that Vines in this state cannot be restored to vigour and fruitfulness without renovating the border to its entire depth, because the bulk of the roots cannot be reached by any other means.

These facts ought to be deeply engraved upon the minds of those who are engaged in top-dressing Vine borders at this season of the year. It is a loose system of culture to get into the too common habit of yearly removing the soil from Vine borders to a given depth and adding fresh materials, without paying much regard as to where the roots are located. The real guide should be to remove the soil till a fair quantity of roots are found, then to notch any strong ones in places where they are devoid of fibre, and cut clean away any damaged parts. The soil should then be worked underneath them, lifting them as near the surface as practicable, and place a few inches of soil upon the top, instead of always filling the border to its normal height. I am fully convinced that Vines frequently receive too much soil at the yearly top-dressings, which causes the roots to become in time too far from the surface, and as they do so produce less of those small fibry roots upon which the perfect finish of a good crop is so largely dependent. Top-dressing, when carried out intelligently, is, I hold, of immense benefit, and ought to receive due care and attention.

Those who can command good turfy loam are more fortunate than many of their neighbours, but any fairly good soil can with proper preparation be made suitable for top-dressing. When heavy clayey soil has to be dealt with abundance of wood ashes, road sand, and lime rubble should be thoroughly incorporated with it; the aim should be to produce a good rooting medium, as it is always a simple matter to supply animal manure to feed the roots and sustain the crops. For surfacing the soil of Vine borders

where the Vines are in good health an excellent compost consists of four parts good loam, one of well-decayed horse droppings or cow manure, half a part wood ashes, and a little soot. When the loam used is of a heavy nature add a sufficient quantity of lime rubble and road sand to make the whole in the right mechanical condition for roots to work freely amongst, and to prevent it getting into a sodden condition the quantities of these materials must of course be varied according to the degree of tenacity the loam used possesses; in some instances the lime rubble, wood ashes, and sand ought to be as large in bulk as the loam; sufficient manure should then be added to make it about one-sixth of the whole.

Where the Vines are not in good condition and are wanting in fibry roots I would substitute leaf soil for the manure, as I have found Vines have a great partiality for sweet, half-decayed leaves, in which they root with surprising freedom, and it is useless to attempt to feed Vines until abundance of roots are first produced. After the soil has been placed in position, half-decayed manure to the depth of 1 foot should be placed upon outside borders, but I would defer placing the manure upon the inside ones until the fruit is thinned. Where Vines in outside borders are forced early I fully believe in placing fermenting materials to the depth of 3 feet upon the borders, as it keeps the surface of the borders warm, and induces in a marked degree what all Grape growers strive to get—viz., plenty of surface roots.—H. DUNKIN.

CINERARIAS AT MIDWINTER.

CINERARIAS grown as annuals are extremely useful plants, and accommodating too. Although the regular flowering season is considered to be during the months of March and April, a good display may, with a little management, be obtained at midwinter and for a month before Christmas if desired, so amenable are the plants to different forms of treatment. A good number of plants flowering at the time named gives a pleasing variety after the bulk of the *Chrysanthemums* are past, the same plants lasting in good condition for a considerable time.

Apart from their usefulness as decorative plants, *Cinerarias* in a cut state are appreciated, the bright and varied colours appear so well under artificial light. No annual that I am acquainted with gives so much range in colouring as *Cinerarias*.

An advantage gained in flowering these plants at this time of the year is they are not nearly so liable to be infested with green fly as they are when flowering more at the ordinary season, when the weather is warmer. Where convenience exists, there is no reason why the plants should be in flower at one time. Whether it be during the middle of winter or in spring, a succession can easily be secured, provided space is available for a greater number of plants. The point to study is to sow the seed at intervals, instead of making but one sowing, as in the ordinary method of allowing the plants to flower as they will, say in March and April.

Some cultivators still adopt the old method of raising their stock of plants from offsets annually. Where special kinds or colours are desired no other method is so certain of success; but, nowadays, when such a wide range of colours as well as quality in the individual blooms can be obtained from seed through a reliable firm, it seems to me to be a waste of time to resort to the offset method. For flowering at Christmas, those raised from seed are better. Two sowings should be made—the first during the early part of May, and the second the first week in June. A succession of flowering plants is then assured, assuming, of course, neglect does not follow the initial stage. Any fine sandy, sweet soil will suffice to sow the seed in. Well-drained pans are the best for the purpose, covering the pan with a square of glass. To maintain the soil in a moist state, a little moss over the glass will dispense with the necessity of shading the frame.

Directly the seedlings show through the soil remove the moss and tilt the glass a little to admit air to keep the plants sturdy. A weakly growth cannot produce dwarf plants with robust foliage and strong heads of bloom, such as are required to be effective in a decorative point of view, especially for house use. Plants ranging from 9 inches to double that size in height are best suited for decorative use at the time named. This is a point to be borne in mind.

The pots in which the plants are to flower should range from 4½ inches to 7 inches in diameter. These final sizes will guide the cultivator in giving the plants their preceding shifts. A compost largely composed of leaves thoroughly decayed, with a small portion of loam and sand mixed with it, will be suitable in the initial stage; afterwards more loam should be added in the place of the leaves, with a small quantity of partly decayed horse droppings for the final shift. It is a mistake to allow the roots of *Cinerarias* to

become matted together before they are repotted; the foliage becomes crippled, and the flower spikes are never so stiff as they ought to be.

Cinerarias must have abundance of water during active growth and require frequent supplies of liquid manure, especially when the pots are small. Nothing is better than that made from cowdung and soot given in a weak state. Sulphate of ammonia at the rate of quarter of an ounce to a gallon of water is beneficial after the flowering pots are well filled with roots. It imparts a deep green colour to the leaves, but it should not be given oftener than once a fortnight.

The first sowing may be made in a spent hotbed, the second in a cold frame behind a north wall. This latter affords the best site for all the plants for the first four months of their growth (including those sown in the hotbed after their first potting), as the trouble of shading the frames daily can be dispensed with, which will be a great saving of labour. Frames or pits with a southern aspect during the month of October will suit the plants better than their previous position, rendering them more compact in growth than they would be if remaining behind the wall longer. About the first week in November take them inside to a light airy position, as near the glass as possible. In our case we erect a temporary stage with boards across the border in the Peach house, which is kept as cool as possible; by that time the leaves have fallen from the Peach trees, the Cinerarias then obtaining plenty of light. There they remain until the flowering season is past. At no time of their existence must the plants be crowded, or they will certainly be spoilt. The leaves of one should only just touch those of its neighbour. Cinerarias suffer perhaps more than any kind of plant by overcrowding.

The plants are very subject to attacks of green fly, thrips, and the leaf-mining maggot. Frequent fumigations with tobacco will dispose of the two former pests when the first signs of the enemy are noted. For the latter hand-picking must be resorted to. The maggot can easily be seen in the leaves, and is easily removed with the point of a knife. Until the plants come into flower they are much benefited by syringings of clear water in the evening after a warm day.—E.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION

THE annual general meeting of the members of the above Institution was held in Simpson's Hotel, Strand, at 3 P.M., on Friday last, January 15th, when H. J. Veitch, Esq., presided, and there was a good attendance.

The report and statement of accounts appended were read by the Secretary, Mr. G. J. Ingram, and in moving their adoption the Chairman also proposed a message of sympathy with H.R.H. the Prince of Wales, the Patron of the Institution, and the other members of the Royal Family in their recent trouble occasioned by the death of the Duke of Clarence. Both resolutions were carried unanimously.

Mr. H. J. Veitch was re-elected Treasurer, especial thanks being accorded him for the trouble he had taken on behalf of the Institution in the past year. Messrs. H. Cutbush and J. Hudson were then elected members of the Committee in the place of Messrs. Richards and Meston deceased, Mr. H. Williams being elected in the room of Mr. Roberts, who had resigned, the other members being again re-elected. The arbitrators appointed for the ensuing year were Baron Schröder, with Messrs. Baker, Webber, and Munro. Mr. G. J. Ingram was also unanimously re-elected as Secretary.

REPORT OF THE COMMITTEE.

In presenting the fifty-third report of the Gardeners' Royal Benevolent Institution the Committee are glad to be able to state that the benevolent objects for which the charity was founded, now more than half a century ago, have been carried out during the year 1891, and they would congratulate the members and subscribers on the continued and increasing usefulness of the Institution towards a deserving class of the community.

The Committee desire to draw attention to the successful anniversary festival in July last, which was, in a great measure, due to the kindness of the Right Hon. Joseph Chamberlain in presiding, and to whom the Committee would express their sincere thanks for the eloquent manner in which he pleaded the cause of the Institution on that occasion. The Committee are also anxious to express their grateful acknowledgments to those gentlemen who acted as Stewards, and to those friends who so kindly sent flowers and fruit, which so materially helped in making the festival a success.

The Committee deplore the loss of many friends during the past year, amongst whom were the Duke of Devonshire (a Vice-President of the Institution), Mr. W. Richards (a member of the Committee), Mr. Joseph F. Meston (also a member of the Committee, and formerly one of the Auditors). All these gentlemen were warm friends of the Institution, and will be much missed.

The Committee have also to record the loss they have sustained by the death of Mr. E. Roger Cutler. He had held the office of Secretary to the Institution for fifty years, and was untiring in his energies and indefatigable in his zeal on its behalf, and the Committee gratefully

recognise his efforts, and take this opportunity of expressing their deep regret at his decease.

During the year now closed sixteen pensioners have passed away, three of them leaving widows, and these, after full investigation being found eligible, have been placed on the pension list in succession to their late husbands in accordance with Rule 7. One of them, however, was not destined to enjoy the pension for long, for she died before the year closed, thus surviving her late husband only a few months.

In consequence of representations made to the Committee they approached the son of a pensioner with a view to his foregoing the pension hitherto awarded to his mother. They are glad to announce that he met the Committee in a kindly spirit, and acceded to their requests, thus relieving the Committee from any further payments on account of this pension.

The Committee desire to draw special attention to the fact that they have been enabled during the past year to expend in pensions and gratuities the largest amount on record—viz., £2739 16s. 8d. This they consider is a matter for much congratulation.

They have also determined to increase the number of pensions now on the books by thirteen, to be elected this day. Six of them are recommended to be placed on the list without the trouble and expense of an election under Rule 6, the remaining seven to be elected in the usual manner.

In thus increasing their liabilities the Committee would confidently appeal to the many generous supporters of the Institution to strengthen their hands by making its needs and the benefits it dispenses more widely known, so that the funds may receive a larger measure of support.

Mention should also be made of the death of James Wells, at the age of 103. He had been a pensioner for thirty-one years, and during that time had received no less a sum than £521 from the funds.

In conclusion, the Committee would point out that this is the only Society for granting pensions to gardeners and those engaged in horticulture pursuits in their old age. During the time the Institution has been in existence they are pleased to remind their friends that upwards of £55,000 has been distributed in pensions and gratuities to aged and infirm gardeners and others; they would therefore earnestly appeal for continued and increased support to enable them to add to the number of pensioners, and to carry on the good work in future.

STATEMENT OF THE RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION FOR THE YEAR ENDING DECEMBER 31ST, 1891.

Dr.	£	s.	d.	£	s.	d.	£	s.	d.
To Balance, 1890..	692	2	1			
„ Transfer from deposit account	1000	0	0			
							1692	2	1
„ Annual subscriptions	1339	10	0			
„ Donations at and in consequence of the annual dinner	1241	3	0			
„ Collecting cards	126	16	4			
„ Advertisements	47	18	0			
							2755	7	4
„ Dividends on Stock	685	8	9			
„ Interest on deposits	86	5	8			
							771	14	5
							3527	1	9
							£5219	8	10
Cr.	£	s.	d.	£	s.	d.	£	s.	d.
By Pensions and gratuities				2739	16	8
„ Late Secretary's salary and honorarium	132	10	0			
„ Locum tenens..	64	0	0			
„ Secretary's salary	65	13	9			
							262	3	9
„ Rent of offices (including repainting)				77	17	0
„ Stationery				29	2	4
„ Printing				157	14	6
„ Postage and expenses of appeal				40	12	0
„ Expenses of annual meeting and election				18	17	3
„ Marion & Co., for frames				3	3	2
„ Books of cheques				6	13	4
„ Wreath for Mr. Cutler's funeral				4	14	6
„ Advertisements for vacant secretaryship				4	9	6
„ Expenses of annual dinner	206	6	5			
„ Less tickets sold	123	18	0			
							82	8	5
„ Postages, wages, and travelling expenses				92	14	6
							780	10	3
							3520	6	11
„ Placed on deposit with bankers				800	0	0
							4320	6	11
„ Balances—									
With Treasurer at bankers				838	16	11
„ Secretary				10	0	0
							898	16	11
							£5219	3	10
Stock invested	£25,000					
Pension Adjustment Account	2650					

Signed, J. LEE.

JAMES WEBBER.

JESSE WILLARD.

Auditors. January 9th, 1892.

Six candidates having, in accordance with the rules, been voted on the pension list without election, it was stated that three vacancies had occurred since the voting papers were issued, and the Committee therefore recommended that after the seven pensioners for whom the election was called had been elected the three next highest on the poll should be declared elected, and this was duly proposed and carried. When there-

fore, the scrutineers later in the afternoon announced the result of the poll it was found that the number of votes were as follows, those with an asterisk prefixed being elected.

*Henry Bartholomew, 1892; John Butler, 914; *Louisa Jennings, 1876; Jane Eliza Nichols, 675; William Coleman, 718; *Mary Elizabeth Gray, 2523; *Henry Martin, 1968; *Elizabeth May, 1224; *George Medland, 1799; James Munro, 468; Harriet Woolford, 1193; *Lydia Bostock, 1586; T. H. Bowler, 699; Henry Bridden, 861; Clara Elizabeth Brown, 272; John Collier, 93; *Roderick Elphinstone, 1400; Henry Fielder, 208; *Jane James, 1839; Emma Kendall, 576; Thomas Lane, 894; George McIntosh, 1127; Ann Nixon, 153; James Ricks, 549; Thomas Thomas, 12; Samuel Tisdale, 659; *Jemima Grace Truran, 1534; George Woodgate, 914; Francis Woodhams, 413.

The annual lark pudding dinner was held in the same hotel at 6 P.M., the Rev. W. Wilks presiding, and there was a representative gathering of horticultural friends of the Institution, notwithstanding that several vacant seats were caused by the too prevalent illness. In proposing the first toast, "The Queen and the Royal Family," the Chairman referred to the death of the Duke of Clarence, and the toast was drunk in silence. The next duty of the Chairman was to propose the toast of the evening, "The Gardeners' Royal Benevolent Institution," and, in the course of a brief but effective speech, he referred to the satisfactory progress made in the past year, and emphasised the fact that though so much had been accomplished the expenditure had been less. He pointed out the benefits conferred by the Institution, and advised gardeners to give every possible help in so good a cause. Mr. H. J. Adams responded, mentioning that he had been connected with this Institution for over thirty years, which he had been induced to join by the late Secretary, Mr. E. R. Cutler, whose death he deplored, but he was glad they had secured so good a successor. "Kindred Institutions" were proposed by Mr. Sherwood in appropriate terms, the Gardeners' Orphan Fund and the United Horticultural Benefit and Provident Society being specially mentioned as performing excellent work in their own particular departments. In the absence of Mr. Barron, this was responded to by Mr. B. Wynne.

An important toast had been omitted from the list, and the Chairman supplied the omission by proposing the health of the Secretary, Mr. G. J. Ingram, which was received with acclamation. Mr. Wilks pointed out that Mr. Ingram had had many difficulties to encounter in following the late Secretary, but he had overcome them most satisfactorily, and all felt satisfied they had secured the right man. Mr. Ingram responded, thanking the members for their kindly expressions of good will, and assuring them that he should devote his best attention to promote the interests of the Institution. The nursery and seed trade were proposed by Mr. Arnold Moss and responded to by Mr. W. J. Nutting and Mr. H. Williams respectively, and the toast list was concluded with the health of the Chairman, proposed by Mr. Veitch. An admirable musical programme was carried out during the evening, and added greatly to the enjoyment of the gathering.

HERBACEOUS BORDERS AND THEIR OCCUPANTS.

HOWEVER herbaceous borders may vary in size or neatness, there is at all times something in them to interest or please. The phrase of "recurring taste for herbaceous plants," which is by no means confined to gardening periodicals, has almost become hackneyed in its familiarity, yet it is still used as freely as it was years ago, as if the "taste" has not yet raised them to their original level; and yet if the case was thoroughly examined it is more than probable that the number of so-called herbaceous plants at present grown greatly exceeds those at any former period. This naturally brings with it the counterbalancing difficulty with which plenty is commonly accredited, and as every individual has his own ideas of arrangement and colour, which the best teachers can only modify, confusion and harmony combine frequently. In the bedding-out style of flower gardening two shades of scarlet in conjunction are an unpardonable sin, but the herbaceous border is a city of refuge for all such combinations if the plants only bear the charmed name.

In the botanist's garden, where each plant stands solely on its own merits, arrangement is not generally considered, except it to be to assist the well-being of the plants; but if a system of massing for effect, where materials are so plentiful, were adopted in herbaceous gardens, it would doubtless tend greatly to increase the popularity of this class of plants. This massing system possesses a twofold advantage; not only is the effect more pleasing to the eye, but it is also better for the plants. Many genera are vastly different constitutionally, and many also of the species will not bear with impunity the treatment through which their harder neighbours exist. If all are grown in a crowded border it is impossible to give each plant the treatment best for its welfare, for the motto of "Might is right," is surely, if silently, carried out in the herbaceous border, and the weakest will soon be overmastered by the strongest if not well guarded. Where as many plants as possible are grown in a confined border, their characteristic effects are rarely brought out fully, owing to the formality of their surroundings, and because a general system of training is commonly adopted for the sake of uniformity. It is grotesquely painful to see a *Lathyrus* tied stiffly upright as if it was a Hollyhock, and when the same method is adopted with a *Galega* the resemblance to a wheatstack is decidedly too marked to be pleasing. It is this variability of habit, which ought to be their greatest charm, that causes them frequently to get into disrepute, as plants

similarly habited to those I have named are considered to spoil the regularity of the border in which they grow. Besides, a modern herbaceous border is expected to be always trim and neat, although flowers are required in their season.

The mixed herbaceous border is an ancient institution, and I can picture one now which used to delight me above measure; but because there are so many plants—each possessing a beauty of its own, which is frequently lessened at least by unsuitable companionship—there is no law of Nature which compels them to be huddled incongruously together, as they often are, but rather the opposite.—M. D.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 12TH.

SCIENTIFIC COMMITTEE.—D. Morris, Esq., in the chair. Present: Messrs. Michael, Blandford, Professors Green, F. Oliver, Church, Drs. Bonavia, Müller, and Masters.

Thelephora laciniata.—In reference to this fungus, specimens of which attacking Rhododendrons were sent to a previous meeting by Dr. Hugo Müller, the following note was submitted by Mr. Massee:—"Thelephora laciniata, Pers., is a very common species as a saprophyte, overrunning twigs and heaps of leaves lying on the ground, at the same time it readily passes on to living branches and superficial roots, especially if the surface has been abraded, and then becomes parasitic in its nature. As a parasite, it has been noted on the living roots and prostrate branches of Ericaceous plants, *Vaccinium*, *Erica*, *Calluna*, in Hungary by Kalchbrenner, also in England. It has also been observed as a parasite on living Conifers in Germany by Klotzsch."

Beetle in Dendrobium.—Mr. Blandford reported that the beetle referred to at a previous meeting was a Scolytid beetle, probably undescribed.

Diseased Gooseberry.—Mr. Burbidge sent specimens of Gooseberry branches, showing globular spongy outgrowths from the bark, of the size of large Cherries, and cracked on the surface. Mr. Burbidge stated that these swellings produce roots with great freedom if treated as ordinary cuttings. Dr. Masters called attention to the similarity in appearance to the growth frequently seen in *Maréchal Niel* Roses, and also on Vines and Passion Flowers. In some of these cases the presence of a slime fungus (*Myxomycete*) had been detected. Gooseberry growers attributed the formation to water accumulating on the branches, and promoting the formation of roots. The specimens were referred to Mr. Arthur Lister.

Black Knot.—Dr. Masters showed specimens of this disease received from the United States. The disease occurs in Plum trees, and is due to a fungus, *Plowrightia morbosa*, which produces a black nodulated outgrowth—spongy within on the surface of the branch. The tissues affected seem to be the inner layers of the bark and the cambium layer, the cells of which are disintegrated and broken up into a spongy mass. The disease has been described by Professor Farlow, and is very common in America, but happily it is scarcely, if at all, known here. Destruction by fire of the affected branches is the only remedy that can be suggested, though probably spraying with sulphate of copper in an early stage would be effective.

Eucalyptus.—Dr. Masters exhibited a branch of *Eucalyptus globulus*, in which the usually smooth surface of the bark was broken up into an irregularly lobed, corky mass. The branch had been received from Professor McOwan, of Cape Town, and it was considered by him that the disease might be due to the presence of bacteria. A specimen had been previously sent to Professor Marshall Ward, who has promised to report upon it.

YNYS Y-MAENGWYN.

THE name and fame of Impney Hall, its gardens and successful gardener, are already well known to Journal readers. It may not be so well known, though, that the esteemed owner of "Impney," J. Corbett, Esq., M.P., has another and no less beautiful seat in Merionethshire, namely, the above. Let me here warn any daring Saxon who may be reckless enough to attempt the pronunciation of the name to refrain, lest he hazard the risk of a permanent dislocation of his too inelastic jaw. The seat is one of the most ancient in North Wales, was burnt to the ground during the Parliamentary war to prevent its affording shelter to the Parliamentary forces, and was last rebuilt about the middle of the eighteenth century by one "Anne Owen;" the architecture is considerably mixed, in part Elizabethan and in part more modern styles. The mansion is highly picturesque, and with its surroundings impress the visitor with its antiquity. By a coincidence the present family purchased the estate from the late owners, who were of the same name though not at all connected. It should be said, too, that they have succeeded to the good name that both families have richly merited, both in their turn having served the town and district of Towyn most bountifully. The present Mr. Corbett has recently, at an enormous cost, erected a sea wall and promenade that are bound to ensure the success of Towyn in future as a watering place. It is indeed already popular, and deservedly so, with its miles of sandy beach, unsurpassable for bathing, its splendid sea and river boating, its stretch of verdant plains, (which is almost an unknown thing on the North Wales coast) and the magnificent grandeur of the towering heights in the distant background; besides which it can

boast of a church dating at least from the eighth century, and of a well dedicated to the founder of the church "St. Cadvan," whose waters are said to be curative of all ailments. In the grounds of Ynys-y-Maengwyn many relics of long past ages have been found, telling both Roman and ancient British life in matters of peace and war.

The gardens have long been celebrated and referred to as among the first in the principality. There is indeed ample evidence of their being well planned and cared for before the present age awoke to its existence. Immense Yew hedges from 15 to 20 feet high and almost as much through, dense and impenetrable like masonry; Beech trees in large numbers in company with members of the Pine family; noble Limes and other deciduous trees, and a magnificent Evergreen Oak—said to be the finest in the kingdom—all in their own language tell of very careful and systematic planting by skilled hands that ceased to labour long, long ago. The Oak referred to is truly a monarch. Its branches extend and completely cover a circumference of nearly 400 feet; the weight of its branches were such as to cause anxiety, and therefore supports are fixed in the way of bands to strengthen and hold them together. In another place we find a stout old Wistaria sinensis covering some 60 or more feet of wall, looking pityingly down on the modern dwarfs in its vicinity as though resounding past glories such as they, the dwarf, know nothing of, much in the way that an occasional veteran in human form will recount to us striplings the wonders of the good old times. But the glory is not all of the past in either sense, and I find Mr. Doig, the head gardener here, actively engaged in rivalling and actually surpassing the old order of things. Planting operations have been on hand for some seasons, and a wise council prevails in the matter of selection for permanent positions. Mr. Doig has evidently studied his business, and hence, instead of an indiscriminate mixture, we find only such Conifers, &c., as are really suitable.

The plantations are thriving admirably; a recent plantation of hybrid Rhododendrons are promising great things, and the same may be said of a new rosery—but thorny is the path to success, as Mr. Doig finds in the case of his Roses. During the past season it has been war to the hilt between himself and more than one species of insect pest. Like an able general, knowing that strategy will succeed where plain battle fails, he has attacked them in their weakness and demolished them.

There are several large old-fashioned borders in the grounds that during the whole of the season, from early spring until autumn frosts set in, are full of interest, and make a most gorgeous display, beginning with bulbous plants, spring bedding, such as Wallflowers and Forget-me-nots, and followed by Pyrethrums, Phloxes, Delphiniums, with Dahlias, early flowering Chrysanthemums, and a host of other showy plants, tall and small growing; the effect on such a large scale is very lovely. Kitchen garden walls are furnished with a capital lot of trees—Peaches, Plums, and Cherries; the former thrive and bear well here generally, and the fruit trees altogether in garden proper and elsewhere have borne enormous crops the last season; in fact, heavier crops on young and old trees it would be difficult to conceive. Many old stagers of Apples and Pears have been root-pruned and allowed to remain in their positions for the present, and their produce has fully justified their retention, whilst the majority have had to make way for young and more vigorous trees of the best known varieties.

We pass by without notice the various kitchen garden crops, comprising among other things in season at the time of our visit colossal Onions, real Welsh Leeks (in size), and well-ripened Tomatoes on the walls almost by the bushel. The new range of fruit houses was our next halt. These were going through their initial season work. The range consists of five compartments; the entire length is 150 feet by 16 feet wide, and three-quarter span of first-class construction, and are planted inside with Black Hamburgh, Muscat of Alexandria, Lady Downe's, Barbarossa, and other Grapes in four compartments, the fifth being a Peach house planted with fan-trained and pyramid trees, the back walls throughout the range with Peaches, Figs, and Vines, the whole so far doing and promising remarkably well. Provision is made for outside borders to be added when necessity arises. What might have proved a calamity was happily averted by Mr. Doig's timely attention being attracted to a peculiar fungus which made its appearance in the new border through some turf from a particular place having been by mistake mixed up with the prepared compost; only a little, however, got in, and was speedily picked out after its discovery without any further consequence.

Behind this range the fruit room, Mr. Doig's office, potting sheds, and a commodious bothy are situated; and fronting these more glass structures are contemplated. The site of some former glass houses ("glass was under a heavy tax when they were erected") is passed, and we further pass by a path almost entirely covered with Laurel growth. This was pointed out as "The Lover's Walk," and methinks a sigh was heard and a sentimental silence followed as onward through a lovely woodland our way we wended; and what a woodland this is in spring! Literally ablaze first with Snowdrops, and later with "Daffys," Bluebells, Wood Anemones, and Violets. Truly a rural paradise! But we have not mentioned the Chrysanthemums, and Mr. Doig grows quantities too, and grows them well; but he is not anxious to rob Mr. Parker of his well-earned fame, so grows for decorative and cutting purposes only, and not for large blooms specially.

But we are reminded that our train is shortly due, and perchance it may be punctual, so we hurriedly leave Ynys-y-Maengwyn and its glories, accompanied by our kind host, and repair to the railway station, and just catch our train ("the mail"), which was only an hour late! —BRADWEN.

THE CHICAGO EXHIBITION, 1893.

HORTICULTURAL DEPARTMENT.

WE have received from the Secretary of the Royal Commission for the above named Exhibition the appended statement with regard to the representation of horticulture at Chicago.

Applications for space in this department should be made upon forms to be obtained from the Secretary of the Commission at their offices, Society of Arts, John Street, Adelphi, London, W.C. They must be sent properly filled up, not later than February 29th, 1892, and addressed to the Secretary, Sir Henry Trueman Wood, as above. The charge for space within the buildings will be as follows:—For spaces not exceeding 100 sq. ft., 5s. per sq. ft. For spaces exceeding 100 sq. ft. and not exceeding 200 sq. ft., 4s. 6d. per sq. ft. For spaces exceeding 200 sq. ft. and not exceeding 300 sq. ft., 4s. per sq. ft. For spaces exceeding 300 sq. ft. and not exceeding 500 sq. ft., 3s. 6d. For spaces exceeding 500 sq. ft. and not exceeding 750 sq. ft., 3s. per sq. ft. For spaces exceeding 750 sq. ft. and upwards, 2s. 6d. per sq. ft. The minimum charge will be £5.

The following description of the building, &c., is extracted from a paper recently read before the Society of Arts by Mr. James Dredge:—The horticultural building is a great conservatory, 1000 feet in length, and 287 feet in maximum width. The general features of this building are to be a central dome, 187 feet in diameter, and 113 feet high. At each end is a large rectangular pavilion, and these wings are connected with the central rotunda by the main body of the building, each side of which is divided into two courts, 88 feet wide by 270 feet long. The front courts will be used for especially tender plants. The rear courts will not be entirely glazed; they will be especially adapted for fruit-growing exhibits which may require a cool temperature. The central dome will be chiefly given to Palms, Bamboos, Tree Ferns, Cacti, Eucalyptus, &c. The ground floor of each pavilion will be chiefly used for fruit exhibits, collections of seeds, and horticultural appliances.

It is the intention of the chiefs of the horticultural department to encourage the best possible displays of all meritorious exhibits in the various groups of pomology, viticulture, floriculture, culinary vegetables, seeds, arboriculture, methods and appliances of horticulture, &c. The classification of this department will embrace everything of professional interest to horticulturists, and there can be little doubt but that the display will give us as great an impetus to the gardener's art as did the similar, but much more limited, exhibit at the Centennial Exhibition of 1876. I think there is every reason to suppose that this section will receive very warm and practical support from English horticulturists. Not only is our pre-eminence in the art fully recognised in the United States, but the importation of plants is not saddled with the heavy taxation that applies to most other objects to that country; in fact, all plants intended for indoor cultivation, for the production of cut flowers, and for decorative purposes are admitted free. In the same way many garden seeds are equally unencumbered, and a very large trade is done in them by seed producers in this country.

It will be within the remembrance of many persons who visited the Centennial Exhibition at Philadelphia in 1876 that the Rhododendron displays made by British growers gained the wonder and admiration of millions of American visitors; this exhibit laid the foundation for a large and constantly growing trade in this particular shrub, and I was recently informed by one of the chiefs of this department in Chicago—an eminent horticulturist—that, despite the advance that has been made in America in this branch of culture, we still maintain the lead that we had nearly twenty years ago.

In 1876 there were less than a thousand nurserymen in the whole of the United States; this number has been increased more than fourfold at the present time, and the trade in America with cut flowers and decorative plants is enormous. At the beginning of this year there were 4659 floriculture establishments in the United States, with nearly 39,000,000 square feet of glass. The value of these establishments is about £8,000,000 sterling, while the value of the plant sales during 1890 amounted to £2,500,000 sterling, and that for cut flowers to nearly £3,000,000. With this very extensive business, with the acknowledged fact that we, as floriculturists, are far in advance of the United States, and with the very favourable conditions that exist, there is every reason to suppose that, in this department at least, British exhibitors may go to Chicago without the least doubt as to the commercial success of their undertaking.

The following is the text of the classification for horticulture and floriculture:—

Horticulture.—Garden vegetables and their cultivation. Market and truck gardening. Esculent vegetables. Garden tools and other accessories of gardening.

Floriculture.—Hardy perennials, flowering shrubs, &c., other than Roses, Rhododendrons, &c. Roses of all varieties. Rhododendrons, Azaleas, and wild flowers. Orchids and Orchid houses. Ornamental leaf plants. Bedding plants and annual flowering plants, ornamental bulbs, &c. Flower and seed trade—Methods of testing vitality of seeds. Caetaceæ. Aquatic plants and their culture; Nymphaea, &c. Cut flowers and florists' work. Floral designs, &c. Bouquets, preserved flowers, leaves, seaweeds. Illustrations of plants and flowers. Materials for floral designs. Bouquet materials, bouquet holders, bouquet papers, table decorations. Receptacles for plants. Flower pots, plant boxes, tubs, Fern cases, jardinières, &c. Window gardening. Plant and flower stands, ornate designs in iron, wood, and wire.

Arboriculture.—Ornamental trees and shrubs. Methods of growing, transplanting, &c. Fruit trees and methods of rearing, grafting, trans-

planting, pruning, &c.; means of combating insects and other enemies. Nursery and the nursery trade.

Pomology.—Fruits of temperate and sub-tropical regions, as Apples, Pears, Quinces, Peaches, Nectarines, Apricots, Plums, Grapes, Cherries, and Melons; cold storage, and other methods of keeping, packing, and shipping. (For Grapes, see Group 20.) Citrus fruits—Oranges, Lemons, &c. Bananas, Pine Apples, and other tropical fruits, except Citrus fruits. Small fruits—Berries, &c. Casts and models of fruits.

Preserved Fruits and Vegetables.—Dried Apples, Pears, and Peaches, and small fruit. Apparatus and methods of desiccating. Raisins and raisin industry.—Methods and appliances. Prunes, Figs, Dates, &c., in glass or boxes. Fruits in cans or glass, preserved in syrup or alcohol. Jellies, jams, marmalades. Vegetables, dried or in cans or in glass. Pickles, Champignon, Truffles, chutney, mustard, &c. Fruits glazed and imitations in wax.

Appliances and Methods of Horticulture, Floriculture, Arboriculture, &c.—Hothouses, conservatories.—Methods of construction, management, and operation. Heating apparatus for hothouses and conservatories. Hotbeds, forcing and propagating houses and appliances. Seats, chairs, and adjuncts of the garden and conservatory. Ornamental wirework, trellises, fences, borders, labels for plants and trees, &c. Garden and nursery administration and management. Horticulture, floriculture, and arboriculture as arts of design and decoration. Laying out gardens.—Designs for the laying out of gardens and the improvement of private residences; designs for commercial gardens, nurseries, graperies; designs for the parterre. Treatment of water for ornamental purposes.—Cascades, fountains, reservoirs, lakes. Formation and after treatment of lawns. Garden construction, building, &c.—Rockwork, grottos; rustic constructions and ornaments for private gardens and public grounds. Planting, fertilising, cultivating, and appliances.



HARDY FRUIT GARDEN.

APPLES AND PEARS—BUSH AND PYRAMID TREES.—The pyramid form of training has come very much into favour of late years, and possesses many advantages over large standard trees for gardens and small plots of ground, as it gives a crop of fruit sooner. The trees are within reach without cumbersome ladders, high culture is easily carried on so that the finest fruit may be obtained by this means, the fruit is more secure from wind in exposed situations, and a larger number of varieties can be grown if desired, although this is not advisable if the fruit is intended for market. This form of tree requires more attention in the young state than the ordinary standard tree. A certain amount of pruning is necessary every year while any vigorous growth is going on in order to preserve the balance of sap, so that the tree keeps of an equal size all round, and above all to keep the branches thin, so that light and sunshine can reach all parts of the tree. As a matter of course all dead or weak branches must be cleared away. If these conditions are secured no other pruning is necessary. It cannot be too strongly impressed on the mind of the fruit grower that pruning this class of tree by cutting hard back year after year will not induce fruitfulness; on the contrary, fruit spurs are more likely to form if pruning is abandoned, and yet it is by no means uncommon to find trees of this class that bear little or no fruit and are annually pruned down to the same point after they reach the regulation size. Trees in this state should have a few of the strongest and best placed shoots retained for growing, merely shortening their points back one-fourth of their length to induce the buds to break and form spurs, and to give the necessary stability to the main branches. All other young wood that is weak or too thickly placed should be thinned, thus leaving ten or a dozen main branches to grow and form long cordons full of fruit spurs. If treated in this manner for three or four seasons the trees will become much larger, but they will also bear good crops of fruit if other conditions are favourable, and after fruiting commences on an extensive scale growth will proportionately diminish until scarcely any pruning is necessary.

If from any cause the trees cannot be allowed to grow to a larger size, any unfruitfulness must be corrected by judicious root-pruning, and when forming new plantations less vigorous stocks should be employed, such as the English Paradise for Apples, and the Quince for Pears, but the latter is of no use in dry situations; but continually cutting back the strong shoots annually made is only a waste of time and of the tree's energies, and will never induce fruitfulness in unfruitful trees.

LABELS.—All trees should have their labels examined systematically once a year, and the present is the best time for the purpose, as they are more easily found when there are no leaves on the trees. Some may require renewing, but the most common fault occurs where they are attached to the tree by wires. These are apt to cut the bark as the branches become larger, and eventually induce canker and death to the

branch. Strips of lead, with the name punched in by means of moveable type, form one of the best and cheapest kinds of labels. Advertised metal labels, with the names cast on in raised letters, are cheap and almost imperishable, or pieces of lath smoothed and painted may be used, but these, as a rule, need too much attention in the way of renewal, and should only be used on a small scale. All fruits in gardens should be labelled for convenience of gathering and storing the fruits, and as a means of education to the younger members of the profession.

FRUIT FORCING.

PINES.—The plants which completed their growth early last autumn and have been treated (as advised) so as to fruit early in the year, will now be doing so; if not, they must be accelerated by extra care and attention, which will be fully repaid by the fruit ripening at a time when it is most in request for parties given during what is known as the London season. Take every advantage, therefore, of suitable weather to afford increased heat during the day. Let the temperature rise to 80° before giving air, then, with moderate ventilation, allow it to rise to 85° or 90°, closing at 85°, the night temperature being gradually raised to 70° and 75° by day by artificial means, unless the weather be dull and cold, when 5° less will be more suitable. The moisture will need to be increased correspondingly with the temperature, but do not syringe the plants or the hot-water pipes, yet maintain a genial condition of the atmosphere by damping unheated surfaces two or three times a day. Keep the bottom heat steady at 85° to 90° for Queens, other varieties about 5° less. Look the plants over once a week for water, and when a plant needs a supply afford a watering with weak liquid manure at the same temperature as the plunging material.

Fruiting Plants.—Ordinary fruiting plants should have a temperature at night of 60° to 65°, 65° by day in dull cold weather, 70° to 75° in mild weather and with a little sun, ventilating a little at 75°, allowing an advance to 80° with sun, at which close the house, sprinkling the paths and walls at the same time.

Succession Plants.—Sufficient heat to maintain the plants in slow yet steady advancement in growth is necessary in this department. That will be secured by a night temperature of 55° to 60°, and 60° to 65° by day, advancing to 70° or 75° from sun heat with moderate ventilation so as to secure a sturdy plant, keeping the air moderately dry, as too much moisture at the present time either at the roots or in the atmosphere tends to a soft attenuated growth.

FIGS.—Earliest Forced Trees in Pots.—Those started in November to supply ripe fruit at the close of April and in May are forming fresh roots abundantly; therefore the bottom heat must be kept steady at 70° to 75°, bringing the fermenting material to the rim of the pots. This will encourage surface roots, and instead of letting these extend over the rims of the pots into the fermenting material, place pieces of turf round the rims of the pots, and extending over or down the sides, which will keep the roots near home and induce a sturdy growth, and the roots can be fed in the turf. To encourage active feeders from the collar fill the hollows formed by the turves with sweet lumpy manure or rough pieces of turf, and sprinkle these occasionally with a little of the following mixture:—Superphosphate 2 lbs., nitrate of potash 1 lb., sulphate of lime 1 lb., mix, and apply at the rate of half ounce per square foot at intervals of about three weeks. The soil will grasp the substances, and each watering will render them available for taking up by the roots; besides, there is no waste, for the fermenting material will take care of that aliment passing off in superfluous water. Keep a good moisture in the atmosphere by syringing twice a day and damping as required in dry weather, taking advantage of every gleam of sunshine for raising the temperature to 80°, but admit a little air at 70°, increasing it with the temperature, closing at 75°, and so as to raise the temperature to 80°. Let there be no lack of water at the roots, and with the drainage good there is little danger of giving too much, many crops being lost by keeping the roots too dry or supplying water too late and irregularly. In dull weather the temperature should be kept at 65° by day and 60° at night, but 5° more in both cases when the weather is mild. Superfluous growth should be rubbed off, and the shoots stopped at about the fifth or sixth joint, but trees making sturdy growths will not need stopping, and the finest Figs are borne upon extensions, yet stopping is necessary, especially growth likely to interfere with an equal distribution of the sap and the admission of light and air to all parts of the tree in equal share.

Early-forced Planted-out Trees.—The trees started early in the month and planted in inside borders of limited extent will, the borders having been repeatedly watered so as to bring the soil into a thoroughly moist condition, be starting into growth, and may have the night temperature raised to 55°, and 60° to 65° by day from fire heat, with an advance from sun heat to 70° or 75°, but with moderate ventilation. Syringe the trees in the morning and early afternoon of fine days, the latter always sufficiently early to allow the trees to become fairly dry before night, and in dull weather omit the afternoon syringing. Weakly trees may have a good soaking of liquid manure at a temperature of 85° to 90°, but it must not be too strong. This will induce the formation of roots, and active feeders being pushed they should be encouraged by light mulchings of lumpy material.

CHERRY HOUSE.—The utmost care must be taken to have the trees perfectly free from aphides. These pests seem to emerge from the eggs simultaneously with the buds casting their scales, and they at once fasten on the growths. That they must be prevented doing by fumigating so as to thoroughly annihilate the pests, for it is essential to a good set that the blossoms be perfectly developed, therefore effect their

destruction before the blossoms unfold. Syringe the trees up to the blossom showing the loveliest of all white, but cease then, damping available surfaces instead and ventilating freely. Keep the house at 40° by night, 45° to 50° by day by artificial means, ventilating at 50°, and allowing a rise of 10° to 15° from sun heat, with full ventilation, closing the house for the day at 50°. See that there is no deficiency of moisture at the roots, watering when necessary, and attend regularly to the needs of trees in pots.

MELONS.—Seeds sown early in the month are in second leaf, and root action now proceeds rapidly; therefore attend to earthing, and when the small pots are occupied with roots shift the plants into pots a couple of inches larger in diameter, always watering in advance of shifting, so that the roots are all preserved in turning out the plants, and not allowing them to become root-bound. Plunge in bottom heat near the glass, a temperature of 75° to 80° being sufficient, placing a small stick to each plant for its support until it is large enough to transfer to the hillock in the Melon house. Plants intended for planting out in pits and frames, and trained over the surface of the beds, can be planted out as soon as they require more root-room, or be shifted into larger pots, stopping them at the second rough leaf.

Soil for Melons.—Heavy loam is preferable to light, and that cut and stacked in the previous autumn will have the herbage destroyed. The top 3 inches of a pasture closely grazed by sheep is most suitable, and this chopped up moderately small will grow grand fruit. An admixture of old mortar rubbish, say a sixth, supplies lime and grit, and the plants grow sturdier for a supply, which is often deficient in turfy loam, and a quart of dry soot, and two quarts of dry wood ashes to a bushel of loam makes the poorest soils available for Melons, whilst rendering it obnoxious to wireworms and slugs. Unless ordinary garden soil is used, manure is not necessary, but it is a great mistake to suppose that Melons cannot be grown in ordinary loam, for add to it the soot and wood ashes, and, if deficient in humus, a fourth of thoroughly decomposed manure free from worms, when it will grow most any kind of fruit. Have under cover a few days to dry, chop up turf, and turn twice to thoroughly mix the ingredients.

Planting in Pits and Frames.—Have the beds made up about a week in advance of the plants becoming fit to plant out, employing thoroughly sweetened materials, putting together compactly. Place a barrowful of soil in the centre of each light, flatten the top, which should be about 9 inches from the glass, and not more than 1 foot, the soil being about 10 inches deep. When warmed through place a plant in the centre of each hillock, press the soil firmly around each plant, keeping it about half an inch below the seed leaves, having the plant and soil in which it is planted moist, so as to prevent the need of water at planting. A circle of quicklime or dry soot drawn around each plant a little way from the stem will absorb superfluous moisture and be a barrier against slugs.

In houses the woodwork must be thoroughly cleansed with soft soap and hot water, the glass with clear water only, both inside and outside, and wash the brickwork with hot lime. Place the soil on a ridge flattened at the top about 10 inches deep in the centre, and when warmed through turn a plant out in the centre of each light, or about 3 feet apart. Secure the stick to the bottom wire, and rub off the laterals up to the height of the wire. Maintain a night temperature of 65° to 70°, 70° to 75° by day, advancing 5° to 10° from sun heat, keeping the bottom heat steady at 80° to 85° if fermenting materials are used; but if from hot-water pipes 75° to 80° is sufficient, for fermenting materials lose heat; therefore it must be higher at the beginning. Frames will need covering with mats at night, and the linings may be attended to as required.

CUCUMBERS.—Young plants must be shifted into larger pots as they require more room, keeping near the glass, putting a stick to those required for trellis training. The soil may be similar to, but lighter than that advised for Melons, adding a little charcoal to keep the soil open and sweet. Plants for frames can be stopped at the second rough leaf. The bottom and top heat may be the same as advised for Melons.

Winter fruiting plants will need surface dressings occasionally to keep them fruitful, and any that exhibit signs of exhaustion will be the better of fresh material supplied in place of as much of the surface soil as can be removed without injury to the plants, using turfy loam with a fourth of manure and a quart each of soot and wood ashes to each bushel. Such surface dressing provokes the emission of surface roots, and when these are plentiful the plants can be invigorated by copious supplies of liquid manure. Keep the growths tied to the trellis, cut out exhausted growths, and tie in young shoots so as to maintain a succession of bearing wood, and consequently of fruit. Give each growth space for development, all the foliage full exposure to light, and above all avoid overcropping.

Strawberries in Pots.—Plants introduced early in December have pushed the flower scapes simultaneously with the leaves. Scrutinise them for aphides before flowering commences, and if there be any trace of the pests take prompt measures to eradicate them before the flowers expand. Damp the walls and paths in the morning and early in the afternoon, with a little ventilation at the early syringing, the temperature being kept at from 50° to 55° artificially, with an advance of 10° to 15° from sun heat. On bright days the plants as well as the paths should be syringed, as absorption and evaporation will take place much more rapidly, and the atmosphere will become sufficiently dry before dark. Lose no opportunity of closing early, so as to raise the

temperature to 70° or 75° from sun heat. Allow the temperature to fall to 50° at night, but 5° higher if the weather be mild. Look the plants over daily for watering, giving those in need a thorough supply.

THE FLOWER GARDEN.

Tuberous Begonias.—Underneath stages, or any place where drip or much moisture reaches the pots, boxes or pans in which the tubers are wintered are not the proper positions for storing these. Drip is particularly injurious, and may lead to the loss of numerous tubers, and, in any case, moisture is apt to promote an early weakly growth, whereas a later and much stouter growth is most desirable. It is advisable therefore to turn out tubers from boxes and such like, and after clearing much of the old soil from them, pack them more closely together in sand. They can then be stored in cool sheds, taking good care, however, to well protect them from severe frosts. March will be quite soon enough to start the smallest tubers in gentle heat with a view to growing the plants to a good size prior to bedding out, while strong old tubers may well be retarded till late in April. Propagating by means of cuttings is best practised during the summer, but old tubers with several shoots may, after the latter are about 2 inches long, be cut up into several pieces and started in gentle heat. The majority will survive and strong plants be had for the flower beds.

Raising Seedling Begonias.—A wet summer such as that of 1891 was scarcely needed to demonstrate the superiority of Tuberous Begonias for bedding out. Beds of them were quite brilliant in spite of the heavy and constant rainfall, whereas Zonal Pelargoniums were a failure. They are effective either in masses of one colour or in mixture, nothing but a frost putting an end to their floriferousness. The erect flowering strains are the most showy, those with drooping flowers, though also very pretty, being most effective in baskets and vases. The preference should be given to quite new seed, and this germinates most surely if sown before the bright sunshine and cold winds of February and March are felt. Added to this, early raised seedlings can be grown to a size large enough to bed out the same season, though it is not to be expected they will rival the two-year-old tubers. Sow early and sow thinly, and thereby avoid losing numerous tiny seedlings by damping. Prepare two or three pans by draining them freely, and filling up firmly and evenly with finely sifted compost largely composed either of very good leaf soil or peat. Avoid all use of sand in the compost, and more particularly on the surface. Gently moisten the soil and then sow the seed on the surface, but do not distribute any fine soil or sand over it. Set the pans on a mild hotbed, cover closely with squares of glass, and shade heavily. There ought to be no necessity to moisten the soil; allowing it to become dry and then watering, however gently, being almost certain to dislodge either the seed or tiny seedlings. In less than a fortnight germination should have taken place, when light must be admitted and the glass gradually tilted. Water very gently indeed and prick out the seedlings into pans of fine light soil before they become crowded and weakly.

Dwarf Lobelias.—These again can best be raised from seed, the strains as supplied by the leading seedsmen being as near perfect as they ever will be. The seed being very small it ought to be sown very much as advised in the case of Tuberous Begonias, and if not unduly exposed to a dry heat or strong sunshine will germinate quickly and surely. The advice to sow thinly seeds to be enforced in the case of these as well as Begonias, crowded seedlings being peculiarly liable to damp off wholesale. Raise plenty of seedlings though, as it is not often too many are available. Cuttings of these Lobelias strike very readily in close frames or boxes placed in a fairly brisk heat, but not if they have been kept in a dry heat and induced to become hard. A newly started vinery, the plants not being placed very near to the hot-water pipes, is suitable for stock plants, and if there are enough of these the plan of propagating by division answers best. If kept in gentle heat the old plants will grow strongly, and directly the young shoots commence to emit roots near to where they start from is the time to divide them into as many pieces as possible. Being dibbled rather thickly into boxes of fine light soil and kept in gentle heat all will grow and be ready for temporarily bedding-out in frames in April.

Ageratums.—Though scarcely so true to name as Lobelias, very serviceable plants can yet be raised from seed, the strains including a good dwarf white. The seed ought to be sown soon and somewhat thinly, covering it very lightly with fine soil. It will germinate quickly if the pans or pots are partially plunged in a gentle hotbed and kept closely covered with squares of glass as well as heavily shaded. The seedlings being duly pricked out in boxes of fairly good fine soil, topped once, and then either given more room in other boxes, or better still, be temporarily bedded out in frames or pits, fine bushy plants will be ready for the flower beds when required. Cuttings of young flowerless shoots strike very readily in a moderately brisk heat, these, in their turn, affording cuttings so that a good stock of a favourite variety will be available in June. Introduce old plants into gentle heat to cause them to produce young shoots freely.

Various.—If a number of strong old plants of bronze, gold, and silver variegated Zonal Pelargoniums were lifted and potted before being badly injured by frost, these ought now to be introduced into a newly started vinery or other moderately warm house, where they will soon commence active growth and give a lot of good cuttings. Spring-struck cuttings of these are quite as serviceable as any autumn struck, but they must not be taken off the old plants before active growth of the latter has commenced, or otherwise the greater part will fail to

root. Much the same remarks apply to the ordinary Zonals and the Ivy-leaved sections. Stock plants of Verbenas ought now to be given a shift into larger pots and placed in gentle heat, a strong heat being most objectionable, and a capital lot of clean sappy young cuttings will then result. Stock plants of Heliotropes, Lantanas, and Abutilons to be similarly treated, and if early cuttings of Fuchsias are required prune a few old plants and start them in gentle heat at once. There would be time to prepare a number of small pyramids for bedding out next summer. No cuttings being required, keep the old plants cool, and only moist enough at the roots to prevent shrivelling.

PLANT HOUSES.

Caladiums.—Examine these, and after shaking away the old soil place the tubers in pans or boxes until they are wanted for starting into growth. A good supply of the useful *Caladium argyrites* may be started at once; these give least trouble when started in pans close together until growth is visible, when they can be potted singly in small pots, or a number together in those of a larger size. Where decorations of various kinds are carried out these plants are most useful in pots varying in size from thumbs to 5-inch.

Begonias.—Those of a semi-tuberous nature, such as *B. weltoniensis*, may be partially cut back and started into growth. Once they are fairly on the move reduce the old roots by one-half, and repot them in the same size pots, or a little larger, according to the size of the plants. These varieties start freely in vineries that have been started, and where the temperature does not fall below 50° at night. These *Begonias* require a moderately light but rich soil. Be careful not to overwater them in their early stages.

Fittonias.—Where warm houses are arranged with small decorative plants with a view to be effective, these little plants as a front margin, or in conjunction with dwarf free-growing *Salaginellas*, are charming. They are useful also for many other purposes in dwelling rooms. They will strike freely in heat in small pots or in pans filled with sandy soil. A large stock can quickly be obtained if the old plants are retained, for these soon break again into growth, and become furnished for decoration or yielding another batch of cuttings.

Adiantum cuneatum.—Plants from which all the good fronds have been removed may have the whole of the small and decaying ones cut away to prevent injury to the new ones by their removal after growth has commenced. The plants may be repotted in a mixture of loam, leaf mould, and sand, then started in a temperature of 60°. In potting place the plants in a larger size, or cut them in two if already in pots that are large enough, in preference to shaking out their roots and reducing them, which results in the production of a large quantity of small useless fronds. By cutting them into two strong fronds are produced from the first. Seedlings possess more vigour than stock increased by division. Seedlings yield nearly double the number of fronds. Water carefully for a time after potting, but syringe freely amongst the pots.



APIARIAN NOTES.

PUNIC BEES.

WE are having a sharp but not severe winter, and the little snow has disappeared. On the morning of the 9th the thermometer registered 12°, or 20° of frost; but there were chilling winds, which along with a humid atmosphere is as trying to bees as it is to frail humanity.

I am anxious about the wintering qualities of my Punic stocks. From one of my pure stocks I have found a few dead bees on the snow. It is the only stock I had neglected to feed with syrup in the autumn, as it was heavy with honey. This is important, because no matter how well managed hives may be, nor to what race the bees belong, if their stores consist wholly of Heather honey they are liable to abdominal distension.

The season is so far advanced that the bees may air themselves the first mild day, and your readers may rest assured that I will give an accurate account of how the pure ones have wintered. The crosses have proved themselves the best honey gatherers, and as good winterers as any. If the pure ones pull through, then the problem of preserving the best honey gatherer is solved.

I find on reading some back numbers that "A Hallamshire Bee-keeper" named these bees Tunisians, and that although they were hardy, the cluster of bees was much smaller in early spring than at the commencement of winter. I also notice that he styled them "non-stingers;" but in the context he plainly shows

that it was not that they could not sting, nor would not, but that they were so intent in honey gathering that they seemed not to notice intruders. He also stated that they were great propolisers, but latterly explained this, and that they were no worse than other varieties. With me they were not so good propolisers as the old British bee, nor nearly so good as the Ligurians, which, by the way, have several names, and in many cases not pure. Most of the writers and admirers of the highly coloured so-called Italian Alp bee did not possess them until after they were crossed with Cyprian or Syrian bees, therefore their evidence on the subject is not worth the paper it is written upon; and the same holds good on much that has been written or printed outside these pages, not only upon them, but on the Punic or Tunisian bees.

I enclose herewith a clipping from a gardening contemporary sent to me for transmission to you, or direct to "A Hallamshire Bee-keeper," to show "a specimen of the rubbish that is printed," but I am glad to say "A Hallamshire Bee-keeper" can easily take care of himself in any attack on this subject. I am glad to say that I have found the Punic bees equal to all that has been claimed for them by that gentleman.

I must now inform your readers that I have no interest in him nor in the bees he sells, and request that persons write direct to him and not to me when in want of queens. He ought to advertise. I am in receipt of many letters of inquiry about these bees, some of them containing orders for queens from him, also some letters countermanding the orders previously given. Besides the expense and trouble entailed upon me answering these letters, and acting as if I were an agent, there is always the apprehension of displeasure for what I may not be responsible. In one or two cases only have I forwarded these letters containing orders for queens or those countermanding them in consequence of matter which has appeared in some English bee journals.

I desire to thank Mr. Wm. Carlton for his high compliment at page 12, and assure him that I will endeavour, as far as possible, not to sully the pages of the *Journal of Horticulture* with statements not in accordance with facts; and I also thank him for his experience with the crossed Punics (but do not call them hybrids); it is in accordance with my own and others who have given them a trial.

I observe in the *Bee-keeper's Record* for January an editorial statement that the most valuable portion of its contents is the experiences of its readers, and that all personal contributions in the future are to be consigned to the waste basket. If we live we shall see, as the last time this resolution was made it lasted only a very short time.

If I were to forward the experience of bee-keepers I receive in my private correspondence, it would sometimes crowd out all other matter, and the Editor would perhaps prefer such brief contributions direct from their authors. I am in hopes that by another week there will be something of a definite nature to be said about the Punics.—A LANARKSHIRE BEE-KEEPER.

[We have sent the clipping described as "rubbish" by a successful bee-keeper, to "A. H. B. K."]

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*Catalogue of Kitchen and Flower Garden Seeds*, 1892.

Henry Eckford, Wem, Salop.—*Select List of Sweet Peas, Vegetable and Flower Seeds*, 1892.

Armitage Bros., High Street, Nottingham.—*Seed Catalogue*, 1892.

W. Piercy, 89, West Road, Forest Hill, S.E.—*List of Early and Summer Flowering Chrysanthemums*.

Agricultural and Horticultural Association (Limited).—*Catalogue of Vegetable and Flower Seeds*, 1892.

John Peed & Son, Roupell Park Nurseries, Norwood Road, London, S.E.—*Seed Catalogue for 1892*.

B. L. Coleman, Sandwich, Kent.—*Seed Catalogue for 1892*.

Wm. Rumsey, Waltham Cross.—*Catalogue of Select Seeds*.

William Bull, 536, King's Road, Chelsea.—*Catalogue of Seeds for 1892*.

W. Fromow & Sons, Chiswick.—*Seed Catalogue*, 1892.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Eucharises — Tuberoses (*J. W. and J. M. T.*).—Your letters, which only arrived on Wednesday, could not be answered this week.

Gardeners' Railway Fares (*A. B.*).—An employer is not compelled to pay the railway fare of a gardener if such is not arranged at the time of engaging.

Primulas (*E. G.*).—The flowers are of a pleasing delicate hue of colour, but many can be seen similar if not exactly the same in large trade collections, where special attention is devoted to the raising of new forms of these charming winter flowers.

Rhododendrons (*F. M.*).—The mixture you name would be suitable if mixed with more than twice or thrice the bulk of loam, according as this may be of a rather light or heavy nature, and it will be better for the purpose if it does not contain lime.

Tomatoes (*York*).—A very successful grower regards Prelude as one of the most profitable he has tried. It is certainly a free bearer, but the fruits are not large enough for some persons. Hathaway's Excelsior, Ham Green Favourite, and Perfection have also proved satisfactory by the grower referred to.

Odontoglossum crispum (*W. D.*).—The varieties of *O. crispum* are extremely numerous and differ greatly in character and value. The one of which you send a flower is distinct and well worthy of preservation; but it is not of the type which commands the highest prices. What are regarded by connoisseurs as the best type of *O. crispum* are those with broad sepals and petals, and either suffused with crimson or bearing abundant large and deep coloured spots.

Peach Trees Unsatisfactory (*C. R.*).—Are you sure the fault is in the soil? Insects, overcrowding the leaves, overcropping and defective ventilation have rendered the growths of many trees unsatisfactory. You should have described their condition. A mixture of equal parts of nitrate of soda and superphosphate of lime, applied at the rate of $1\frac{1}{2}$ oz. to the square yard and watered in, would have a stimulating effect if there are healthy roots for appropriating the food thus supplied.

Setting Saddle Boiler—Tomatoes (*R. C.*).—The brickwork should not be built solid round the boiler. After the heat passes through it may be diverted along each side of the boiler back to the front and along the top, the smoke then entering the flue which leads to the chimney. An intelligent bricklayer ought to understand the routine if he read this reply to your question. Prelude is one of the most productive Tomatoes, but the fruit is rather too small; still, some growers find it profitable. We have not grown the others you mention.

Fig House Arrangements (*Inquirer*).—If the front hot-water pipes are a yard or more away from the front wall and above the level of the intended border there will not be any need to remove them, but if they are not so situated it will be necessary to take them out. You will only need trees along the front of the house, and as a permanency there will only be room for one tree. Temporary trees might be put in on each side of it, planting the permanent tree in the centre along the front; and trees could be grown against the back temporarily, but they would not fruit satisfactorily after the roof was occupied by the growths of the permanent tree. As the border is only 4 feet wide you might perhaps wish to have two trees instead of one permanently. That width is ample for one or two trees, whichever you elect to have. The border should have a drain at the bottom to carry off superfluous water, giving it proper fall and outlet. Over that 1 foot of drainage is necessary, and if the rubble is covered with a 3-inch layer of old mortar rubbish it would be an advantage; 2 feet depth of soil is ample, consisting of good rather strong fibrous loam, with a fifth of old mortar rubbish and a sixth of road scrapings intermixed. This should be put together rather firmly, and a little time in advance of planting to allow of settling. The border need not be made the whole length of the house at first. If each tree is given a space of 4 feet square, which can

easily be done by putting in cross walls of loose bricks, the root room will be sufficient for two or three years, when the remainder of the border can be made. The trees can be planted any time before or when they are beginning to grow, shaking the soil from the roots, disentangling them, and spreading out evenly, making the soil firm, and watering so as to settle the soil about the roots. The best varieties are Brown Turkey and White Marseilles, the former being the best of all Figs. You may have fruit this year provided the trees are of fruiting size and they take well to the soil. It is necessary that the growth be trained to a trellis about 1 foot from the glass.

Sternbergia lutea and White Narcissus (*A.*).—Although the Sternbergia is a hardy plant it usually succeeds much better in pots or pans of light sandy soil in a cool house, and the flowers are also seen to better advantage. The White Hoop Petticoat Narcissus, which is perhaps the *Bulbocodium monophyllum* or *nivalis*, can be grown in a similar way, and if afforded a light cool position the bulbs will flower if watering is carefully attended to. The Sternbergia in warm well-drained soils is very pleasing in the autumn, producing flowers freely,

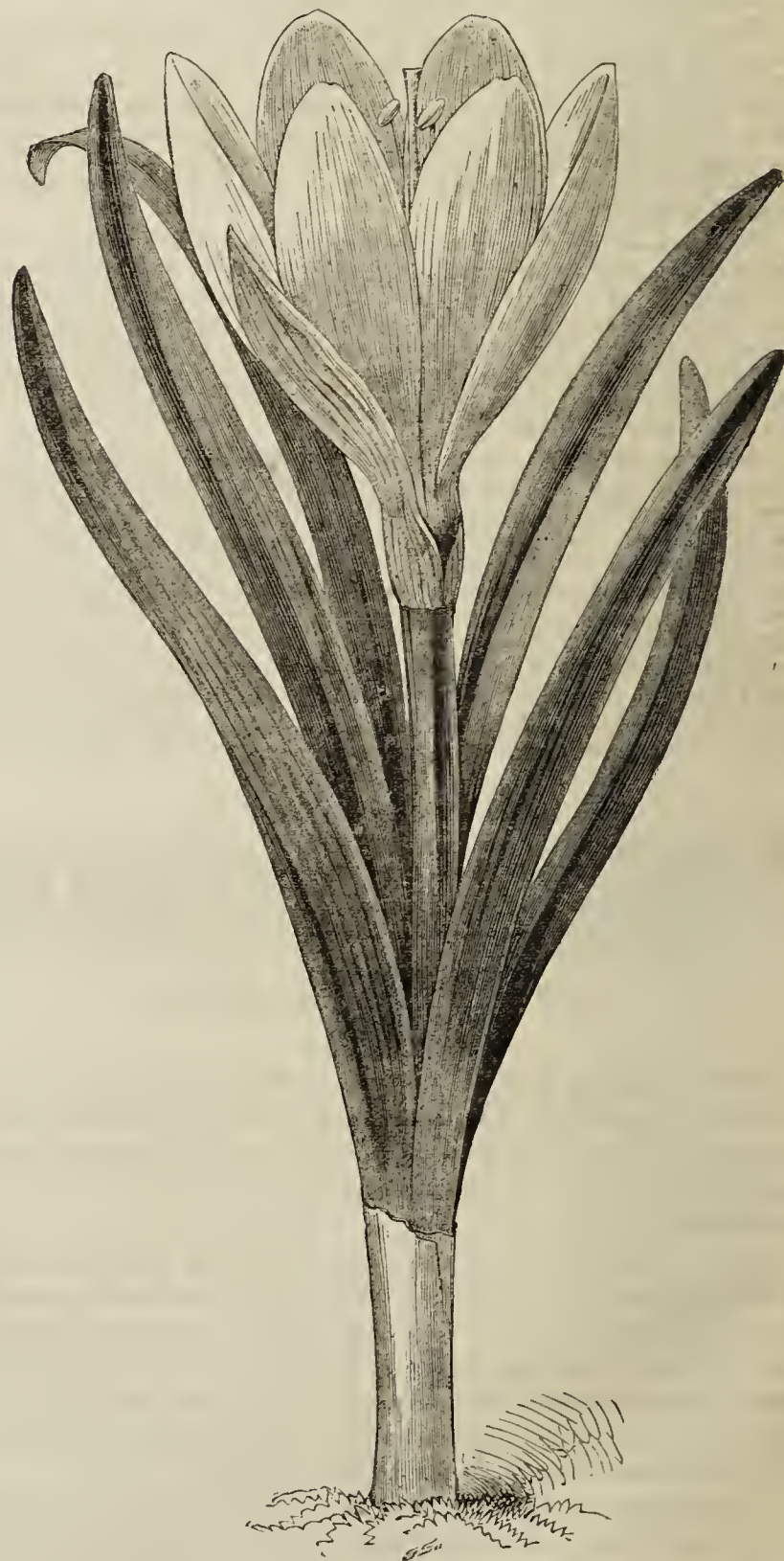


FIG. 8.—STERNBERGIA LUTEA.

something like Crocuses or Colchicums. *Sternbergia lutea* is a native of Southern Europe, and has been in cultivation for nearly 300 years, yet it is seldom grown in pots for the greenhouse or conservatory.

Northern Spy Apple (*W. M. B.*).—The following is the description of the Apple as taken from specimens well grown in this country:—Fruit, fragrant when ripe, large, ovate, inclining sometimes to conical. Skin, thin, at first of a greenish yellow on the shaded side, and on the side next the sun covered entirely with a thin, pale crimson cheek, which

is covered with broken streaks of a darker crimson; but as the fruit acquires maturity after being kept, the shaded side changes to a rich golden yellow, and the crimson becomes brilliant. The whole is covered with a thin bloom like a Grape. Eye, small and closed, set in a very deep, narrow, and furrowed cavity. Stamens, marginal; tube, long, funnel-shaped. Stalk, three-quarters of an inch long, slender, deeply inserted in a wide hollow. Flesh, white, very tender, fine-grained, crisp, and very juicy. Juice, sprightly, sweet, and with a fine delicate aroma. Cells, ovate; abaxilic. A valuable dessert Apple; in use from December till May. The tree is a fast and vigorous grower, and has an upright habit. When it acquires a little age it is an abundant bearer; but it is apt to become bushy-headed, and therefore requires frequent attention to keep the head open and free of spray. This excellent Apple originated about the year 1840 in the State of New York, on the farm of Oliver Chapin, of Bloomfield, near Rochester. It belongs to the Spitzenburgh race, and bears some resemblance to the Esopus Spitzenburgh. Gradually it became a favourite among American orchardists, and in 1843 we find it one of the sorts which were recommended "for trial" at one of the pomological conventions. In 1847 the fruit was sold in New York at 12½ cents. each.

Neglected Young Orchard (Apple).—We presume the ground is not waterlogged, nor made wet by water from higher ground. If it is it must be drained, which when done efficiently, renders the soil warmer and opens up new sources of food for the trees. We should turn the turf under, using a fork, not going deeper than the good soil, and be very careful not to disturb the roots more than can be helped. If you were then to give a dressing of lime, say six to ten tons per acre, placing it quite fresh in little heaps, covering with soil, and when fallen spread it hot on the ground evenly, and harrow or lightly point in, it would improve the texture of the soil. The materials you have would make an excellent compost, provided the coal ashes do not form more than a tenth part, throwing the whole together along with a sixth part of quicklime, thoroughly incorporating by turning over once at least before using as a top-dressing. The top-dressing should be applied a couple of inches thick as far outwards from the stems of the trees as the roots extend, or better, 2 feet more. This will act as a mulch, encourage surface roots, and be a source of nutrition, the rains washing the solved elements into the soil. The trees must be protected with wire netting or guards from the attacks of animals. We fail to detect any eggs of insects on the bark sent for our inspection, but there were some live creatures—spiders—and the bark is coated with lichen. You may wash the trees whilst dormant with salt brine strong enough to stand an egg on its end, using a brush, taking care not to damage the growths, nor let the brine run down; or the trees may be dusted with quicklime whilst wet with fog or mist. Either will cleanse the trees of the overgrowth. The best remedy for caterpillar is a mixture of Paris green, 1 oz. to 20 gallons of water, using as a spray only, and keeping mixed whilst being applied. The remedy must be used carefully, as it is very poisonous, and should be applied upon the first appearance of the plague, repeating as necessary.

Carnation Leaves Spotted (E. G.).—If there are faint signs of spot or mildew on the "grass" when layered, the evil is almost sure to spread after the plants are rooted, potted, and stored in frames. Even when the growths are clean we have found them more liable to spot when potted late than when established in pots earlier, so as to insure active root action in the autumn. Great care in watering the plants and ventilating the frames is necessary in the winter, anything approaching a stagnant atmosphere being injurious. It does not follow that "plenty of air" should be given "day and night constantly," regardless of the weather, as on some very damp foggy days we have found it best to keep the frames closed. Lifting the lights and forcing them down rather sharply is often a better method of changing the air than propping them up when the air apparently is motionless. Not a drop of water should be spilled on the foliage or between the pots, a supply being only given to the plants that need it on the mornings of dry days. All the worst leaves should be removed from your plants, the earth in the pots stirred, a layer of dry ashes spread for the pots to stand on, and sulphur dusted on the leaves of plants that are slightly affected; then with greater care in watering and ventilating the plants may improve, or at least such of them that are not beyond recovery.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (W. C.).—1, Winter Hawthornden; 2, Dumelow's Seedling; 3, Worcester Pomeroy; 4, Catshead; 5, Alfriston; 6, Cox's Orange Pippin.—(C. G.).—1, Nee plus Meuris; 2, Not known, and worthless; 3, Jersey Gratioli. The Apple is not in a condition to be named, indeed none of the fruit display the true character of the varieties. (W. Brown).—Pears: 1, Chaumontel; 2, Josephine de Malines. Apples: 1, Flower of Kent; 2, New Hawthornden; 3, D'Arcy Spice.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (Roberts).—We would gladly oblige you if you placed within our power to do so, but small scraps like those you sent placed loosely in a dry box without packing material are beyond all recognition. (W. W.).—1, *Trichomanes reniforme*; 2, *Trichomanes trichodeum*; 3, *Trichomanes radicans*. (M. R. S.).—1, *Gleichenia flabellata*; 2, *Gleichenia Spluncea*; 3, *Hermitelia horrida*; 4, *Dictyogramma japonica*.

COVENT GARDEN MARKET.—JANUARY 20TH.

MARKET very depressed, business almost at a standstill.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	4	0	Grapes, per lb.	0	6	2	6
Apples, Canada and Nova Scotia, per barrel ..	12	0	18	0	Lemons, case	15	0	2	0
Cobs, Kent, per 100 lbs. ..	30	0	35	0	Oranges, per 100 ..	4	0	9	0
					St. Michael Pines, each ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	4	0	6	Mustard and Cress, punnet	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Cauliflowers, dozen ..	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt. ..	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	3	0	6	0	Scorzonera, bundle ..	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket ..	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb. ..	0	4	0	6
Mushrooms, punnet ..	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Oreoid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	5	0	to	8	0	Maidenhair Fern, dozen bunches	4	0	to 9 0
Azalea, dozen sprays	1	0	1	6	Mignonette, 12 bunches ..	1	6	3	0
Bourvardias, bunch	0	6	1	0	Mimosa or Acacia (Freuch) per bunch	1	0	2	0
Carnations, 12 blooms ..	2	0	3	0	Narciss (French) dozen bunches	3	0	6	0
Christmas Roses, dozen blooms	1	0	1	6	Pelargoniums, 12 bunches ..	9	0	15	0
Chrysanthemums, dozen blooms	0	9	3	0	„ scarlet, 12 bunches ..	6	0	9	0
Chrysanthemums, dozen bunches	4	0	12	0	Poinsettia, dozen blooms..	4	0	9	0
Cyclamen, dozen blooms ..	3	0	6	0	Primula (double) 12 sprays	0	6	1	0
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0
Euphorbia jacinthiflora dozen sprays	3	0	6	0	„ Red, per doz. blooms..	2	0	4	0
Epiphyllum, dozen blooms	0	6	0	9	„ Tea, white, dozen ..	1	0	3	0
Freesia, dozen sprays ..	4	0	6	0	„ Yellow, dozen	3	0	6	0
Gardenias, per dozen ..	4	0	8	0	Tuberose, 12 blooms.. ..	1	0	1	6
Hyacinths, dozen spikes ..	6	0	9	0	Tulips, dozen blooms.. ..	1	0	2	0
Hyacinths (Roman) dozen sprays.. ..	0	6	1	0	White Lilac (French) per bunch.. ..	6	0	7	6
Lilium longiflorum 12 blooms	6	0	9	0	Violet Parme, French behs.	3	6	5	0
Lilium (var.) dozen blooms	2	0	4	0	„ Czar	2	6	3	6
Lily of the Valley 12 sprays	1	0	2	6	„ small bunches ..	3	0	6	0
Marguerites, 12 bunches ..	3	0	4	0	„ English, dozen bunches	1	6	2	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to	18	0
Azalea, per plant	2	6	3	6	Ficus elastica, each	1	6	7	0		
Chrysanthemums, per doz.	4	0	9	0	Foliage plants, var., each ..	2	0	10	0		
„ large, doz.	12	0	24	0	Hyacinths, per dozen	6	0	0	0		
Cyclamen, per dozen	12	0	18	0	Lily of the Valley, per pot	2	0	2	6		
Dracæna terminalis, dozen	24	0	42	0	Marguerite Daisy, dozen ..	6	0	12	0		
„ viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0		
Epiphyllum, per pot	1	6	2	6	Palms, in var., each	2	6	21	0		
Erica gracilis, per dozen ..	9	0	12	0	Pelargoniums, scarlet, doz.	4	0	6	0		
„ hyemalis, dozen	12	0	18	0	Poinsettias, per dozen	9	0	15	0		
Euonymus, var., dozen	6	0	18	0	Solanum, per dozen	9	0	12	0		
Evergreens, in var., dozen	6	0	24	0	Tulips, dozen pots	7	0	9	0		



CREAMERIES.

"THE only hope for the English dairy farmer is co-operation, both in the matter of production and of distribution." Such is the dictum of a leading Midland land agent, and in the main we agree

with him ; but he appears to overlook the fact of the majority of Midland farmers being cheese makers, the best of whom have been prosperous throughout the depression. By best, we mean graziers who can undertake to guarantee an output of at least forty or fifty dozen prime Stilton cheeses of a high and fairly uniform degree of excellence. Such men are unlikely to entertain proposals of co-operation unless tangible evidence is forthcoming that they can do better than sell, as they now do, to a factor at 10½d. per lb., delivering the cheese as required throughout the season. It is the small grazier, whose only market is to be found at cheese fairs, that would welcome co-operation, if he could possibly be convinced that the disposal of his milk to a creamery would answer his purpose better than the making of inferior cheese. This should not be difficult, for though such men hardly ever keep accounts, the number of cheese made, with the average weight and price, may readily be ascertained for comparison with the value of milk.

Even in the Midlands, where cheese making answers so well, the contrast between the British and foreign butter trade is enough to set men thinking and acting ; so too in other localities where complaints are loud about the milk trade, the low price of fat stock, of corn spoiled by a wet harvest, of all the ills which agricultural flesh is heir to, ought to induce co-operation for the common good. Earnestly do we hope it may do so, and we are doing what we can in these articles to show how possible improvement is. Now in Ireland it is found that a butter factory may be started for an outlay of £250 on buildings, and £450 on plant—implements and utensils ; let us see what these are. The building need not be large, for no space is required for milk pans ; four divisions are all that is necessary—an engine-room and washing-room in one ; a dairy containing a separator, churn, butter worker, milk-tester, and table or dresser ; a store-room paved with non-porous glazed tiles, having the walls faced with white glazed tiles, with brackets on the walls for the small portable slate shelves on which the butter is brought from the dairy, and a central slate slab for the packing ; a lobby containing a combined milk-weigher, register, and elevator. Two galvanized cisterns are required above the dairy, one for the new milk, the other for the separated milk, both being connected with the separator by pipes.

In building, the points requiring attention are an engine room shut off from the other apartments ; a dairy with an outer door opening upon a covered way to the engine room, and an inner door opening into the store room, the store room to contain nothing which can take up or give off foul odours ; the lobby to be used solely for the receipt of milk and the dispatch of separated milk and of butter packed in the store room. The milk to be received at the lobby door, weighed, registered, elevated, and emptied into the receiver above the dairy, whence it runs into the separator, the separated milk being forced upwards through a pipe into the other cistern. The motor is usually a steam engine, but where water power can be had it should be turned to account. At Mr. R. Barter's farm, near Cork, an electric motor is in use to work the dairy and farming machinery, and is said to be most satisfactory. The dairy machinery driven by the motor consists of an Alexandra cream separator, and a Thomas & Taylor's eccentric churn, producing 80 lbs. of butter at a churning. A butter worker could, of course, be used in the same way. In this instance the dynamo is driven by a turbine, the current being supplied to the dairy by two pilot wires under ground. Mention is made of this to show that a water current at a distance from a factory may readily be turned to account in conjunction with electricity.

The end and aim of the factory is the production and delivery of pure butter. That is why the milk is received and dispatched from the lobby, from which both the dairy and store room are shut off. That, also, is why the engine and washing room are shut off from other parts of the building. No drains are made beneath

any part of the building, all water used for cleaning floors or utensils being made to run off to gratings outside it. It must also stand alone if possible on an elevated position quite away from farmyards, cattle sheds, or other farm buildings. If the separated milk is used for rearing calves or pigs, such animals must be kept at a distance, and never near the factory. Before all things remember that both milk and butter are easily spoiled by contact with any impurities in utensils, water, air ; that is why the dairy and its surroundings must be clean in the fullest sense of the term.

WORK ON THE HOME FARM.

With the land locked up by frost and snow, corn threshing is turned to in real earnest. Fortunate are the men whose master has the good sense and kindly feeling to hold over the barn corn for such a time, in order that the men may have work. Good men are worthy of such consideration, their master knows it, and, apart from feelings of common humanity, it is his interest to do all he can to retain the services of skilled workmen. He has a right to expect from them clean threshing—no corn left in the ears, no waste of corn among chaff, no broken grain. See that the dressing machine is in thorough working order before screening begins ; rest satisfied with nothing short of a first-class sample, even if the corn has to be passed two or three times through the machine to obtain it. Reserve all tail corn for home use among live stock ; this, and this alone, is the right way to use it. It ought never to be used as seed corn ; if it is, the result can only be more or less of a failure. Not only have corn got ready for market, but also measure up all that is required for spring sowing, when every hour will be precious. Clean and put seed drills in thorough order ; let all carts and implements not in daily use have needful repairs done at once, and give them a coat or two of paint, both for the sake of neat appearance and to prevent premature decay. It is quite necessary to mention this matter, as there is a very general negligence of farm implements.

We have seen manure carts going on several farms since the frost set in, the manure being carted from large heaps on to the land, spread at once, and left for ploughing in when the frost breaks, presumably for spring corn. In most instances we notice the manure is spread much too thinly to insure anything like a full crop of corn. Such practice is altogether deplorable. The rent must be forthcoming for the land, labour must also be paid for, but what of the farmer's profits. Nothing short of thirty loads per acre can be termed a full dressing ; even that would be better held in reserve for root crops, and a dressing of home-mixed nitrogenous and mineral manure drilled in with the corn. Try it this season, and you will have ample reason to feel pleased with results superior to what is possible under half dressings of farmyard manure.

OUR LETTER BOX.

Lucerne (Reader).—Lucerne accumulates about 300 lbs. of nitrogen per acre, therefore use no nitrogenous manures. A mixture of 4 cwt. superphosphate and 2 cwt. basic slag per acre will answer admirably. Apply as a top dressing in about five weeks from the present time to old plants, or drill in with seed.

METEOROLOGICAL OBSERVATIONS.

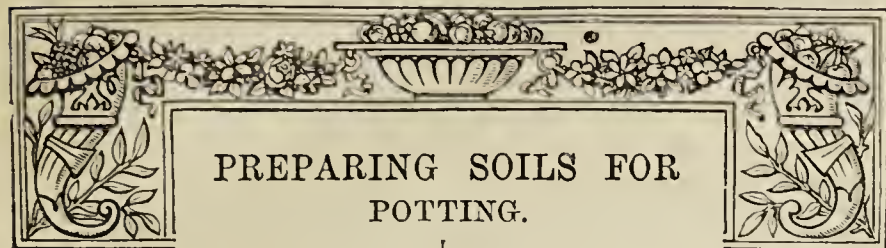
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N. ; Long. 0° 8' 0" W. ; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892. January.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	10	29.549	21.3	24.1	N.W.	35.3	34.6	23.0	42.0	15.8	0.020
Monday ..	11	29.857	34.0	33.7	N.	34.9	37.1	23.9	53.4	26.0	0.010
Tuesday ..	12	29.937	25.3	25.0	S.W.	35.0	36.0	22.8	47.9	17.4	—
Wednesday	13	29.774	32.3	32.0	N.E.	34.9	35.9	24.4	41.2	21.1	—
Thursday ..	14	29.509	30.0	29.8	N.E.	34.8	34.7	29.1	43.1	24.5	—
Friday ..	15	29.519	27.6	27.0	N.W.	34.6	34.8	24.8	47.2	19.3	—
Saturday ..	16	29.513	32.2	31.7	S.E.	34.2	35.7	23.6	51.8	16.1	0.020
		29.665	29.4	29.0		34.8	35.5	24.5	46.7	20.0	0.050

REMARKS.

- 10th.—Overcast early ; a little sleet about 10 A.M. ; occasional sunshine after 11 A.M.
 11th.—Almost continuous but very slight snow and sleet till 2 P.M., then overcast.
 Snow nearly all gone by night.
 12th.—Bright sunshine all the morning ; cloudy afternoon and evening.
 13th.—Cloudy morning ; overcast afternoon ; fair night.
 14th.—Fine and generally sunny. Slight fall of snow in evening ; bright night.
 15th.—Bright sunshine throughout ; fine night.
 16th.—Cloudy and slightly foggy morning ; sunshine from 11.45 A.M. to sunset. The rain entered against this day was the product of a silver thaw between 8 and 9 A.M. on Sunday 17th.
 Another very cold week, temperature very similar to that of the corresponding week of 1891.—G. J. SYMONS.



IN the cultivation of plants and trees in pots success is in a great measure dependant upon the suitability of the soil used at potting time. Most gardeners are aware of the kind of soil in which various classes of plants may be depended upon to produce satisfactory results, but in many instances, unfortunately, they are not able to secure the particular kind their experience leads them to prefer. There is, however, no denying the fact that a vast amount of improvement may be wrought in soils which without considerable preparation would be totally unfit for potting purposes, and I have frequently noticed that good cultivators having only inferior materials to form their potting composts of will, by an intelligent method of preparation, form a compost which as a root-producing medium will compare favourably with mixtures formed of the best materials in less able hands.

Where good turfy loam can be obtained the old practice of stacking it in a heap, with layers of stable manure placed between at about 18 inches apart, is a good one, and as far as my experience goes we have as yet hit upon no better plan. After having remained in the stack for a year, the whole mass being in a fine mellow state, many classes of plants will root freely in it without any other addition, and produce grand sturdy growth. Thoroughly good turfy loam containing plenty of fibre, and rather inclined to be light than heavy, is, however, now getting yearly more difficult to obtain, and the various classes of loam which have as a matter of necessity to be used, differ so much in character as to render it necessary to vary the quantities used with other materials to form a compost according to the degree of density they possess; for instance, in a case when three parts loam to one of peat is recommended, if the former is inclined to be heavy a greater amount of the latter material should be used, together with a larger proportion of such sweeteners of the soil as charcoal and lime rubble, which act principally in a mechanical way by keeping the soil open, and slightly in a chemical one, the charcoal by absorbing and keeping in store portions of the ammonia of the soil and the lime rubble by supplying salts of potash and lime.

Peat is even more variable in quality than loam, and when it cannot be procured with plenty of "springy" fibres it ought to be sparingly used, as it gets into a sodden and sour condition sooner than the majority of potting materials. This is especially the case with that kind of peat which consists largely of decaying vegetable matter of a very dark colour and a small percentage of fibre of the right kind. What is wanted is plenty of those small, fibrous Heath roots of a brown colour, with a liberal admixture of sharp, gritty matter. This is the kind of peat which will keep in a wholesome condition for a long time, and as the fibres gradually decay supply the roots of plants with certain elements of necessary food. A class of peat which is extremely misleading is one which is of a very dark colour, and may be cut in thick solid squares, and is permeated with rather strong white roots. When damp this appears to many to be a good serviceable kind, but if seen when thoroughly dry the darkest portions of it crumble to dust, and the fibre left will be found destitute of those minute rootlets which run in all directions, and bind the whole into a threadlike mass. I once saw a mistake made in potting Heaths into this misleading peat, and I have since that time been particularly careful to avoid anything approaching it in appearance. Good leaf soil completes

the list of the three principal ingredients from which composts suitable for all classes of plants can be formed. That formed of Oak and Beech leaves as they fall from the trees and decay in a natural manner is undoubtedly the best; but when heaps of leaves are collected annually, and turned once or twice during the course of their decomposition, the next best form of leaf soil is obtained.

When forming a compost for a miscellaneous collection of stove and greenhouse plants, I find the best plan is to cut up the squares of loam and peat into strips with a spade, then to pull these strips into pieces with the hands, knocking some of the loose soil out as the work proceeds, placing the loam on one side and the peat on the other, leaving the lumps of each material in sizes varying from a Walnut to a cricket ball. The finer portions of the soil which have been shaken out can be placed in a heap, where it will be useful for potting many softwooded plants, when other additions have been made to it.

In finally determining the quantities of peat and loam to be mixed together, the quality of each must be considered. Crotons, Dracaenas, Gardenias, and Stephanotis are all very partial to loam where it is of a good fibry nature, and without the least tendency to adhesiveness. In such cases I would use two parts loam to one of peat; but, on the other hand, where the peat is of much better quality than the loam, use a greater proportion of it. In cases where the loam is of a heavy binding nature, and the peat good, excellent results may be obtained by the exclusive use of the latter. Azaleas, Camellias, and Rhododendrons are often potted in peat alone, but in the case of Camellias the growth made is much more floriferous if from one-third to one-half of good loam is used, and even Azaleas and Rhododendrons are benefited if one part in four of the fibre of loam is added, taking care to shake and beat out the loose particles of soil. When abundance of these two soils—which form the principal proportions of potting composts for the classes of plants above named—are in readiness, it is an easy matter to vary the quantities mixed together to suit the requirements of the numerous species of plants to be dealt with.

For stove plants leaf soil will not be much needed, except in the cases of cuttings; small plants, and Coleuses, Caladiums, Gesneras, and Gloxinias, or any plants of a similar nature which require to be shaken out annually, may with advantage be given a much richer soil than many cultivators recommend. This is especially the case with the two first named, as they literally revel in a compost in which well decayed manure forms one-half of the whole bulk. I have, however, somewhat digressed, and will now return to the general class of stove and greenhouse plants. Having prepared and placed in a heap such quantities of peat and loam as the judgment of the cultivator, founded upon the knowledge already given, shall direct, the only other materials necessary are those which will keep the soil in the right mechanical condition, and a small quantity of manure to add fertility.

Charcoal broken into pieces varying in size from a Hazel nut to a Walnut, used at the rate of half a gallon to a bushel of soil, will in most cases be sufficient; when a larger quantity is necessary, a few pieces may be worked in among the soil as the work of potting proceeds. Good sharp silver sand, used at the rate of one part in twelve or fifteen, will be found a good proportion. Where sharp sand is difficult to obtain, broken crocks sifted through a fine sieve should be used in conjunction with the best sand at command. Cow manure has long been considered the very best natural fertiliser to use in potting composts, but before doing so it should always be thoroughly dried and rubbed through a sieve, as large numbers of minute insects are often found in it, and when these are present they are inimical to root action. Spent Mushroom bed manure is also capital material for mixing with soils for potting, but I prefer to use horse droppings in a fresh state, after having slightly dried them by placing over the top of a stokehole boiler for a few hours. The only objection that I know of to their use in this state is

that weeds give trouble for a time, but this is more than compensated for by the much larger amount of fertilising properties contained in them when used in a fresh condition. The materials already named should be thoroughly incorporated by turning them over on the potting bench two or three times, letting each shovelful of soil slide in a continuous train from the uplifted shovel on to the bench, instead of simply turning it over, which performs the work of mixing but imperfectly for potting very large plants. In addition to the mixed compost I like to have large lumps of both peat, loam, and charcoal ready at hand to drop in at intervals as the work of potting proceeds. Other remarks on the preparation of soils for quick growing, softwooded plants I must defer till another issue.—H. DUNKIN.

THE POTATO DISEASE.

I ONCE heard a reader of the *Journal* say that Mr. G. Abbey "likes rummaging amongst the mysteries." His article on page 40 last week reminded me of the observation. It is an able philosophical dissertation, and as Mr. W. G. Smith a few years ago said very much what Mr. Abbey says now, and showed in an illustration what his disciple explains, we may take it that these fungologists are correct in their statements. A few of Mr. Abbey's observations open up subjects for comment, inasmuch as deductions may be drawn from them that are not calculated to lead to the best practical results—good crops of Potatoes by careful selection of varieties and good cultural routine.

I happen to belong to a district in which Potatoes are the staple crop. Hundreds of acres are grown by men of bright intelligence, and many of them of considerable scientific attainments. They know as much about the theory of the disease as books can teach them, and more about growing the best crops of Potatoes than do most of the writers of those books. Not the least educated of these Potato growers, after trying the latest fungus preventives and taking note of the cost of periodical applications, have more faith in the selection of varieties and good management for obtaining the hoped-for results than in loose methods and doctoring. They know very well that some varieties of Potatoes would be devoured with the disease, while others growing by the side of them would remain comparatively free during a season like the last; and such in fact was the case in fairly conducted trials of different varieties. When all are prepared and planted in the same way in ground exactly the same in texture and constituents, and some varieties succumb, practically all the tubers being diseased, while others yield profitable crops, is it not better, as one Potato farmer puts it, to "grow the strong and disease-resisting than to doctor the delicate?"

It is well to know what will prevent or destroy fungoid enemies, as in small plots or special varieties of Potatoes in gardens, and in the culture of Tomatoes under glass, the knowledge may be useful. Mr. Robert Fenn appears to have so found it in preserving some of his Potatoes; but if he had kept a record of the time he spent and the cost of material used it is possible the gain would not be so great as appears on the surface. Practical men who prefer good crops of Potatoes to a "fight with the fungus" attach very little importance to "trials" in which the cost involved is not clearly stated. "There is no accounting for taste," remarked a farmer whose Potato crops were good enough to bring him £30 an acre last year; "no accounting for taste, for though I have made £2000 by my crops, Fenn, who has saved perhaps 2 tons with his puffer, may be as happy as I." Then he went on to say, "My neighbour over there 'brothed' his, but after all his trouble his Regents did not bring him in half the money that my Giants brought me that were left to fight their own way with the fungus." This farmer was therefore evidently of the same opinion of the other who arrived at the conclusion after obtaining all the evidence he could on the subject by wide and close observation that "it is better to grow the strong and disease-resisting than to doctor the delicate."

It may be admitted as a truism that there can be no fungus growth without fungus spores to produce it, neither can there be fungus growth from spores in the absence of the necessary conditions for such growth. The spores of the fungus that cover damp walls with mould are no doubt always at hand, but walls in a suitable condition for their germination must be provided before there can be any fungoid growths on them, "mould," and so it is in the case of plants. Potatoes must be in a state of receptivity before they can be taken possession of by the parasitic enemy, and this state is influenced and promoted by the weather, by the character of the growth, and possibly by the condition of the sap.

It is quite certain that all varieties of Potatoes and other plants are not to the same extent taken possession of, nor indeed are all parts of the same plants. The weaker varieties are first seized as are the weaker parts of the inherently stronger. Yet Mr. Abbey says "We are bound to relinquish the idea that climatal influences and constitutional weakness are predisposing causes to fungoid attacks." He may be so bound, but in face of the fact that most people who rely on their Potato crops as an important means of livelihood know quite well there is no disease to give them any concern in seasons when climatal influences do not call the spores into action, his dictum will not and cannot be accepted except by what may be termed, without the least disrespect, fungological faddists.

Surely all the world knows that there have been seasons in which Potatoes have been for all practical purposes free from the fungus causing murrain, and the immunity from attack, or more correctly, perhaps, the resistant power of the plants, was entirely due to climatal influences.

If the proposition of your philosophical correspondent was sound all varieties of Potatoes in a district of the same altitude would suffer alike and every year. This is wholly contrary to experience, and exactly the reverse is true. It may be taken for granted that more phytophthora spores settle, or at least remain on plants in hollows and flat and damp places than on knolls, but all the same in these flats some varieties are eaten up with the disease before others are affected. What is the cause of the former being victims but constitutional weakness or peculiarity? and what is the reason of the latter escaping with comparative immunity but their greater constitutional strength? Mr. Abbey himself says one cause is that "their tissues are hard and dry." Does not this hardness and dryness, and consequently greater resistant power to fungoid germs, indicate strength? It is that or nothing, and this strength is induced by climatal influences, which are more powerfully and beneficially active on knolls than on low flat land in a murky and dripping season; yet we are told we must ignore these influences, and also weakness of plant as predisposing causes, though he adduces evidence of the potency of both.

It seems to me and to some other of my Potato growing friends who are not particularly scared by the fungus, the practical deductions which accrue from Mr. Abbey's intellectual discourse are that we need not trouble ourselves about the inherent weakness of varieties, but simply plant those of known high quality, and dress them with fungicides systematically, regardless of the weather, to secure sound crops. Having in view the experience of the past we may be certain that there will be seasons in the future when such doctoring would be entirely superfluous; and if, as it will not be, the practice indicated became general, a vast amount of money expended in labour and materials would be simply wasted. Regarding the subject of Potato culture from a commercial point of view, which alone is a fair test of the relative value of methods pursued, we have to recognise the fact that for some years past the supply of produce in our markets has been so abundant as to keep down prices to a very low level indeed. Potatoes have not been cheaper within the memory of man than during the past ten years. This is not the result of doctoring, but of planting the most freely varieties of constitutional vigour, good yielding properties, and of a quality that meets the wishes of the millions of consumers, whether they are growers or purchasers; and also in the culture of these varieties, "attending well," as Mr. Abbey advises, "to those essential conditions which experience has proved are best calculated to produce healthy plants and abundant yields of Potatoes."

If with his facile pen Mr. Abbey can make clear those conditions in respect of the best weight of sets to plant and methods of preparation, also the best distances to plant, the most approved methods of preparing the soil, the best manures or fertilisers to use for strong land and light, with the quantities to use and the time or times when they can be the most effectively applied, he will do more good to the many than by preaching on phytophthora, however interesting his discourses may be; at least, that is the opinion of many growers of Potatoes besides—J. JOHNSON.

NOVELTIES AND NEW VEGETABLES.

IT has been my custom every year to give a description of new varieties of vegetables which I have tried during each successive season, and I now commence my task, trusting that the experience I have gained will be of some use to those who may be meditating trying this year some of the newer varieties of vegetables. Perhaps the most important novelty is the new volume of "Our Journal" just commenced. Twenty-three years ago I frequently saw the *Journal* in the hands of a very good gardener whom I had known from boyhood, and when ten years later I commenced to take a practical interest in gardening and

thought of a gardening paper my thoughts at once turned to the paper I had so frequently seen but never read. I have watched from that date the growth of the Journal with great interest, an interest intensified by the fact that soon after commencing to read this paper I found out from an old gentleman, a neighbour of mine, that I was then residing in the very spot where the founder of this Journal spent with his brother a portion of his youth, and were the first, I believe, to commence the manufacture of Epsom salts; in fact, I found a layer of salts in an out-house there when removing the surface of the soil. My old neighbour also told me of an interesting trial of salt as a manurial agent and weed destroyer made by Messrs. Johnson. A chance meeting with our present revered head in Russia about twenty-four years ago also added to my interest. Now I cannot but

good cropper, and the beans if picked in a young state only require the ends stripped off, for it is nearly stringless.

The Titan Runner Bean (Laxton) is true to its name, and will doubtless be in great request amongst exhibitors. It is also a good cropper, with beans of good quality, the seed being still in a young state when the pods are so large that they would not be thought fit for table.

Celeriac is not in such request in England as it is with our neighbours. It is, however, a very useful vegetable, especially for soups. A new variety is the variegated, which is so beautiful in appearance that I should say it will be utilised for ornamental purposes, and its beauty does not deteriorate from its usefulness. This I also obtained from Messrs. Vilmorin.

Tomatoes.—Early Ruby Tomato I found several days in front

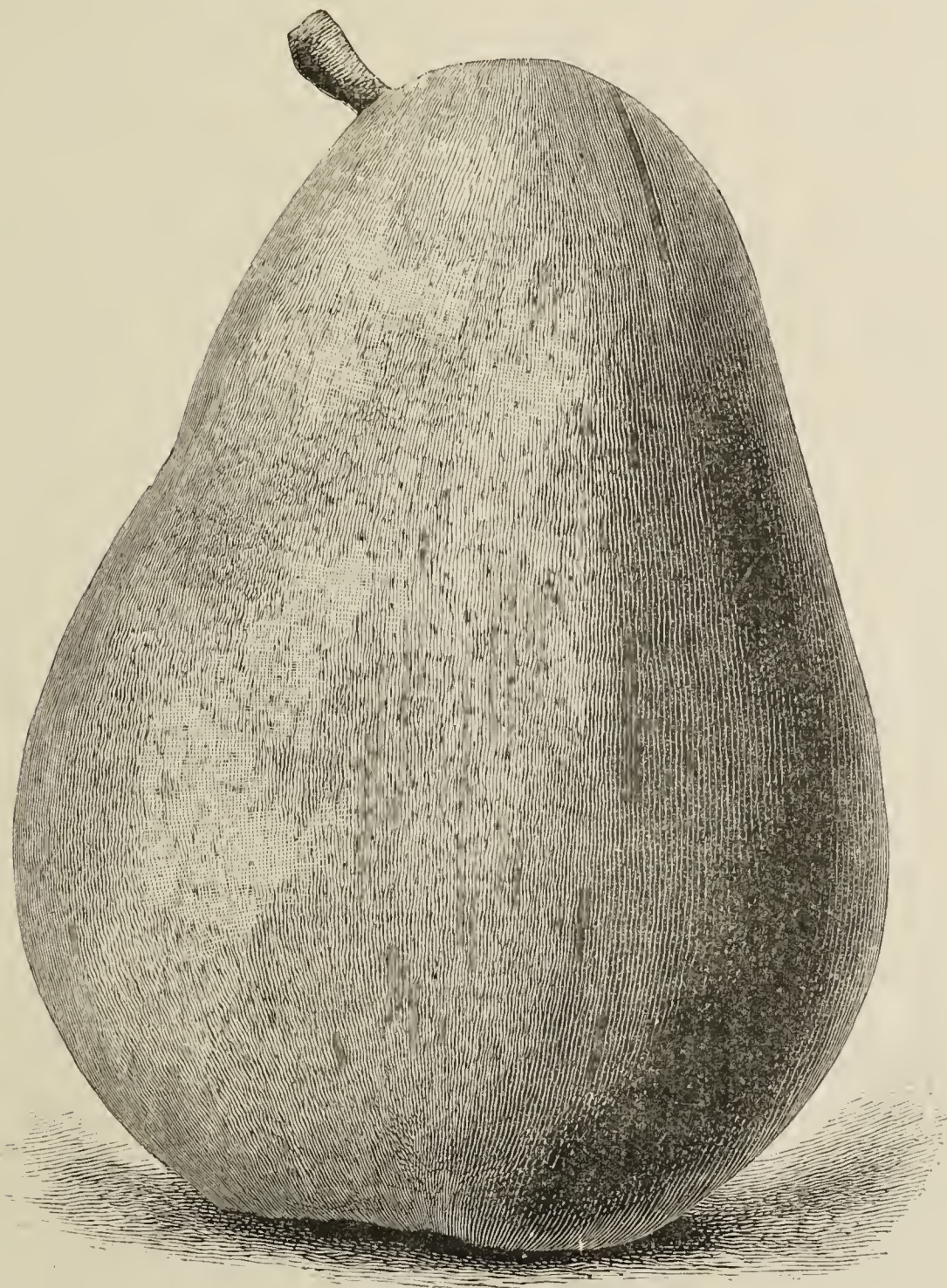


FIG. 9.—PEAR BEURRÉ BACHELIER. (See page 67.)

recognise that as year by year has passed "Our Journal" has not grown decrepit with age, but rather has steadily and surely grown stronger and stronger, and increased in all round usefulness and interest; and, further, I think I am not by any means mis-stating the case when I make the assertion that no gardening or other journal has a body of readers who take such a proprietary interest, if I may use such a term, in this our beloved Journal. The theme is so interesting to me that I find I have written far more on the subject than I intended. Let me, however, wish a prosperous New Year to all and every, both readers and contributors.

Beans.—In French Beans I tried a dwarf purple-podded variety from Messrs. Vilmorin. The colour did not recommend it in the kitchen, and I had orders to grow no more before cooking, but when they were eaten this order was speedily rescinded, for we all thought it the best flavoured Bean we had ever tried. It is a

of every other variety. This is a distinct gain to the varieties now grown, for it is not only very early, but it is somewhat dwarf, a free cropper with medium sized fruits of good colour and flavour. No better Tomato can be grown. It is an introduction from Messrs. Henderson of New York, whose Selected Trophy I also grew to a very large size. It is a very fine and good cropper, and much superior to the Trophy we usually meet with. Mikado Purple and Mikado Scarlet were also grown, and the white fly showed a striking partiality for these two varieties. The former I do not consider worth growing, but the latter succeeded fairly well outdoors and also under glass, and bore some truly immense fruit. A variety from New York, which Messrs. Henderson have not yet supplied with a name, but is numbered 400, was tried, but it was not a sufficiently good cropper to be recommended, although those who require a few beautiful and exceedingly large thick fruits for

exhibition will do well to grow plants. Chemin, a French variety, turned out very satisfactory, being a profuse cropper with handsome oval fruit of high quality, and this will no doubt become a very popular variety.

Cabbages.—I am finding the Christmas Drumhead very useful, and far preferable to Savoy. Those who do not like the strong flavour of the latter will do well to try the former. They heart-up well and quickly.

Lettuces.—Of these I found New York Cabbage far and away the most profitable. They are very large and solid, and I find are in greater request than other varieties I grow, of which I was most pleased with my favourite—Blond Blockhead, which I notice Messrs. Vilmorin have re-christened Blond Stonehead, although to my idea Blond Crisphead would have been more appropriate, for a crisper kind I do not know. Goldenhead I grew, but I do not like the colour; and I prefer the crisp varieties—like Stonehead, Suttons' Favourite, and New York—to the softer-leaved Goldenhead Chavigny (an excellent variety), and many others. In the Cos section the new White Longstanding was a good Lettuce, and did not readily run to seed. It also grew to a large size, and was profitable. The latter quality is an important one to some people.

Peas.—Laxton's Charmer charmed me once more, and to those who want peas, and not bloated pods, it will be useful. Sharpe's Triumph and Queen are two good Peas, not too tall; the pods are large, but the peas are ditto. Veitch's Autocrat, somewhat taller, is a distinct gain. The bloom on the deep-coloured pods is very taking, and it is a good cropper, with peas deep green and of good flavour. Laxton's Oracle is a grand cropper, all the pods being in couples; pods long, with peas packed closely in 2½ feet high. An unnamed Pea from Mr. Laxton grew 6 feet high, and bore immense pods filled with peas, and this doubtless will be a great favourite with exhibitors; but another unnamed one will live for many a day, or I am mistaken. It is about 3½ feet high, deep coloured peas, closely packed to the number of eight to ten in curved pods. It is the latest of all Peas, and the time the pods remain in good condition is very noticeable. I consider this Pea the greatest acquisition we have had for years. Walton Hero I did not like.

Black Queen Beet has very dark foliage, and the roots are of deep colour. The size is medium and the quality good; President Carnot Brussels Sprout is not so good as Suttons' Exhibition; and Holborn Favourite Melon is a beautiful fruit, sets fairly well, and will be found very useful.—H. S. EASTY.

PLANTS FOR ROOMS.

HOWEVER artistic and elaborate halls and rooms may be decorated and furnished they always lack finish in the absence of suitable plants. Perhaps there never was a time in the history of horticulture when plants for these purposes were in greater demand, or taxed the energies of the gardener to a greater extent. It is indeed questionable if any other branch of gardening tries the skill and patience of the young gardener more than the preparation of plants suitable for room decoration. Old hands at this business think little of the wholesale destruction of plants that have been grown for the purpose; but to the young gardener it is disheartening at first to see the care and labour of weeks and months brought so speedily to a termination. The time comes back vividly to my mind when deep regret has been felt at leaving some fine specimen in a draughty unsuitable position.

My object is to point out for the guidance of others how plants can be produced for this purpose. For the present these remarks will be confined to foliage plants, and partially to those that possess green foliage. It is, I think, undeniable that in the majority of positions plants with green foliage are most effective. Those with coloured foliage are often spoiled by the background or the colour of surrounding objects. A plant that may be a perfect specimen of beauty in the house in which it is grown (say a well-developed and highly coloured Croton Warreni), or such a conspicuous object in a group rising from a groundwork of Adiantum cuneatum or other suitable greenery, may not be so striking or effective in many positions in rooms as the common Aspidistra lurida or its variegated form.

The first object is to ascertain the taste and requirements of those for whose appreciation the plants are grown; these will be found to vary so widely that we cannot linger to inquire into them. They will range, however, from those who require anything that is large and green to those who will have choice flowering plants crowded everywhere. Much can be done by steady perseverance and forethought to modify extremes, and it is surprising how the character of the plants used and the method of employing them can be almost entirely changed when the good taste of those to whom the work is entrusted has been observed.

The first year is frequently the most trying to the young gardener, especially if his stock of suitable plants is limited to commence with. It is often the case, and the first year is spent in propagating and growing those that may prove useful for his purpose. It is difficult to form a just estimate at first of the number of plants that may be needed, but this can be determined afterwards. As much should be prepared as can be grown and developed without crowding. Too many plants are as great an evil as too few; time, labour, and material are wasted in addition to the risk of partially spoiling the whole.

When a stock of suitable plants has been obtained the work is by no means difficult if the right method of procedure is practised afterwards. After years of experience we have come to the conclusion that the system so frequently practised of changing the plants at short intervals and supplying others of a similar nature is one of the worst modes of carrying out this work. This system results in the houses being filled with stunted specimens, which, every time they are used, become worse until they are unsuitable for any purpose. Those who have visited many gardens are familiar with these stunted, lingering specimens, and also with the remark that "We cannot keep a decent plant here, we have so much house-work to do."

To have plants for room decoration and for other forms of embellishment for which they may be required in the best possible condition and the houses filled with plants in various stages is not difficult. This is accomplished by constant sowing, propagating, and growing plants to take the place of those that do duty in rooms. The end of all easily grown plants is the rubbish heap. When they are removed to rooms we regard them, generally, as lost, and fill their places with young specimens. When they are used for a solitary day or night the case is different. Orchids, Palms, and plants of slow growth or choice specimens are changed frequently, to do them as little harm as possible, being careful to select for them the best positions. We contrive to have two sets of Palms, one for special occasions and the other for general purposes, with a few extras to fill the places of any that become shabby. These mainly consist of quick growing kinds, and are given twelve months' rest or replaced entirely by young stock that is being grown on purpose.

We have mentioned the Aspidistra, and, though common, it is one of the most useful plants that can be grown. For filling the base of groups under Palms, where they receive very little light, they stand for a long time without the slightest injury. In halls and draughty places this plant has no equal; if a moderate amount of light can reach the foliage and it is kept free from dust it will stand in such positions the whole year round.

Araucaria excelsa is another of those useful plants that should be grown in various sizes, from those in 6-inch pots to plants 8 or 9 feet high, where such large specimens can be employed. By changing the plants about at short intervals, from the darker to the lighter positions, they can be used constantly. Instead of becoming shabby by good treatment and occasional syringing to remove dust they will grow and last in creditable condition for years. The plants are rather dear, and of slow growth at first; but when fairly started they grow quickly if attended to in potting. This plant is graceful and very effective, whether small or large, when well furnished at the base, and proves a much cheaper room plant than many that are grown for the purpose.

Cyperus distans is a graceful plant for 5 or 6-inch pots, and it does not exceed 18 inches in height. It is easily raised from seed, and is most useful during the autumn and winter months. It requires abundance of water, and may be used freely in groups, singly in light or dark positions, and when shabby conveyed to the rubbish heap. The seed should be sown in spring in heat, and when the plants are established they should be grown perfectly cool. This plant for many purposes will largely take the place of Ferns at a time when they are not, without special treatment, in their best condition.

Cyperus natalensis is another useful Sedge. The same size pots will suit it well, and the plant is graceful either used singly or for raising in groups above other plants of a dwarf nature. It attains a height of 2 feet 6 inches, while its flower spikes rise 6 inches higher or a little more. The early stages of the plant's growth should be the same as C. distans, but afterwards care is needed not to draw up weakly its long grass-like foliage. Of the two named this is the more graceful for light effective arrangements.

Cyperus alternifolius and its variegated form are invaluable plants for rooms, either in small pots or when grown into specimens. In most cases they can be used in various sizes. The small ones are raised by cutting away old stems and casting their heads in tanks of tepid water, or pegging them on to the surface of small pots. Shoots soon start from the centre if placed in the propagating box. We have never raised them from seed, but have every reason to believe they can be freely raised by this method. To

maintain a stock of healthy plants a few should be raised annually. They grow quickly in heat, and large plants are better furnished when grown from young stock than when they have done duty, cut over, and induced to push up fresh growth. While ample stock has been raised this method must be practised. This will be found a useful plant, and will not be despised when well grown either as a single specimen or when used in conjunction with other plants. We have limited the stock of small plants of this kind, as the preceding two are so easily raised. The two forms of *C. laxus* will also be found useful for small pots.

Asparagus plumosus and *A. tenuissimus* are graceful plants, and may be used with good effect in any sized pot; so far we prefer them in from 2½ to 7-inch pots. They are easily raised from cuttings: every portion with a joint and a small frond attached will make a plant. They root so freely that each portion may be inserted singly in thumb pots, well watered and plunged in the propagating frame, or under handlights in heat. Those required for the larger size may have two or three cuttings inserted in the small pots; this gives the plants a thicker and better furnished appearance at the base. In one year good plants can be grown suitable for a variety of purposes in 5 and 6-inch pots. For the dinner table where quantities of small plants are employed no plant could be more charming than these in small pots. When the plants are shabby they can be cut over and will spring up freely again from the base, but they never possess the same light and graceful appearance. They are so easily raised that when they are past their best the refuse heap is the best place for them.—WM. BARDNEY.

(To be continued.)

FRUIT CULTURE.

EXTENSION V. RESTRICTION.

(Continued from page 39.)

THE latter part of my subject applies to two systems of culture in the production of fruit trees and fruit—viz., the one known as extension, and the other as restriction. The former applies to all systems of culture, whether trees are allowed to grow naturally, or are artificially trained. The latter also applies with equal force to all systems. The two are so closely united that to my mind it is very difficult to separate them, or to distinguish where one leaves off and the other begins. The two systems are often, in fact generally, being practised at the same time. Every plant and every tree as long as it continues to increase in either length, breadth, or height is extending, and whatever may be done by pruning, pinching, root-pruning, or anything else that tends to limit its growth, brings about principles of restriction. There is a limit to naturally grown trees, and the time comes when they cease extending. There is a limit to extension under glass. If a Vine is planted in the centre of a house extension takes place—say for a few years, until it has filled the whole house with canes. It then stops, and a restrictive system takes place as much with the Vine that has twenty canes as with the one that is grown on the single-rod principle. The last Vine is grown on the very same principle as long as an addition to its length takes place annually. If we look at extension and regard it solely from a philosophical point of view, that it is "that property of a body by which it occupies a portion of space," we can point to the Vine with its ten or twenty canes, and the Peach trees that has filled the trellis in three instead of six years as principles of extension pure and simple.

From a practical point of view extension ends as soon as the plant or plants have filled the trellis allotted to them, and restriction commences. But how are these systems of extension carried out? Mainly by leaving all, or nearly all, of the main shoots that have been made. In the case of the Vine rods are run to the top of the house, and left that length to bear fruit, thinking that by cutting them hard back, or reducing their length to 4 or 5 feet, is wasting the energy of the Vine, and cutting away the best portion of the cane. This is true; the buds are certainly the best towards the top, and viewed from this standpoint only it does appear a mistake to cut away this promising portion. If the well-being of the Vine is considered it is wise to make this sacrifice, and reduce the cane so that strong lateral growth will result for furnishing the base. But the question arises, Why rob the lower buds and so grow the cane that the best are at the top? These to my mind are like pot Vines grown purposely for yielding fruit one year, and then to be thrown away. Frequently these are thickest at the top, and have their best buds also near the extremity. Canes that are allowed to extend the whole length of the rafters, and are then pinched, are in exactly the same condition, and make puny laterals only at the base, and strong ones at the top, having the appearance of being wrong way up. This is frequently the condition of Vines that have canes left at pruning time, yards,

instead of feet, in length. If the buds could be induced to form as prominently towards the base as the top, and would break strongly and evenly throughout, then the restrictive system, or that known as such, could not be too strongly condemned. But this cannot be accomplished, for in many cases the eyes never break, and even if the canes are severely cut back they very seldom break strongly and well from the lower eyes. Even running canes from the bottom to the top, unless they are to be cut practically close back, cannot be too strongly condemned.

The object should be to build up a good foundation, and so grow the cane that its buds are plump from the base to the position to which it is to be cut back at pruning time. This is accomplished by pinching the leader about 18 inches above the length it is to be left at pruning time. Directly the lateral appears from the axil of the top leaf remove it, and force the top main eye to burst again into growth. While this is taking place important work is going on below; the cane thickens enormously, and the buds plump up and increase in size until the cane is thoroughly matured. The leader may then be allowed to extend as much as the cultivator desires. The right end of the cane is at the base, and the eyes will break strongly and evenly throughout the length that has been left.

This, then, is called restriction. In the one case we have a well furnished cane and in the other a badly furnished one at the bottom. But we have to consider briefly the permanent results of the two systems. The one grown on the extension principle may be the thicker of the two. The principle of extension quickly ends and restriction begins earlier than in the other case. The one is limited in growth, as much so as an old or fully established Vine, while the other has head room and can make vigorous growth, which, no doubt, assists the Vine wonderfully in carrying its early crops of fruit. But the permanent value of the two must be judged by the manner in which they have matured. The restricted Vine, for such it must be called to distinguish it from the other, solidifies considerably after it is stopped, and commences naturally to ripen at the base first. The wood is firmer and in the majority of cases less pithy than the other. The one is steadily and surely built up, the other is rapidly grown—often overgrown, and is very liable to collapse after the few first years' strain of fruit-bearing.

We must leave the Vine and look at the Peach, for principles of extension are applied to these. The system with these mainly consists in laying in the shoots the entire length they have made during the season, as well as the laterals that issue from them and are rightly placed. Once the tree is established there is no difficulty in inducing the formation of shoots 4 to 6 or more feet in length. This is certainly a quick and ready method of filling the trellis with wood. Nevertheless I do not favour this principle in all its details, but a modified system in the case of these trees I do admire. First, trees run up on these principles must be short-lived in comparison to those that are grown on more moderate principles. Such strong shoots cannot be thoroughly matured, and disease must result. The laterals I strongly object to; there is generally a bare space of 2 or 3 inches between the main shoot from which they have issued and the first buds on them. This is the first step towards the tree getting bare towards its main branches. This strong growth induces a grossness that it is very difficult to change. This is not all, for in proportion to their shoots and their quality so are their roots; they are strong, practically fibreless. Trees that are encouraged from the first to make moderate growth, and their shoots are balanced by summer pinching, have some stability. The wood becomes firm, solid, and well matured, and they are capable of bearing heavy crops of fine fruit without much injury; the roots, too, are not strong and fibreless, but are a mass of active feeders. If they exceed what we may term moderate growth the well known restrictive measure of gently root-pruning them induces the formation of good bearing wood and plump buds that will "stick on," while those on strong overgrown trees are certain to fall. The old restrictive principle of hard pruning back these trees is practically a thing of the past, and those who have advocated extreme measures of extension have done good by inducing growers to discontinue the free use of the knife and adopt moderate systems of extension.

I had intended dealing with this subject more particularly in relation to hardy fruits. Trees two years from the bud or graft should be planted. I have seen some hundreds planted that have been grown in a natural manner from the first on what I call extension principles. The first shoot from the bud or graft varies in length according to the size and strength of the stock, and are considerably shorter on dwarfing stocks than on free ones. I have seen Victoria Plums on large stocks 8 or 9 feet in length or more the first season. But for illustration we will suppose them to be 2 feet 6 inches to 3 feet in length. Trees prepared largely for planting are run up quickly, like a good many other things. Those for bushes and pyramids are often left their entire length. If the

trees are to be standards they are not touched ; the stem is disbudded in the spring and through the summer to the desired height, when they are allowed to branch, and in autumn are sent out for planting. As standards I do not object to these or the principle, as I should prefer these to older trees, and they would start better after planting than if left on the ground another season. But for pyramids or bushes I do object to these extension principles. Trees that are only topped the length given are nice round twiggy like plants the following autumn with far more shoots than is really needed with the weakest at the bottom. These—that is, the shoots at the base, in the majority of cases become weaker and weaker, and eventually have to be removed. The trees in the course of a few years have a clean leg at the base, giving one the idea that at planting time the bud had been what we may term dwarf standards. There are exceptions to all rules, and some of these trees persist in growing, and the whole of the shoots, from nearly every eye, attain strength. Here, then, we have a tree that becomes crowded with branches, and eventually smothers all inside fruit spurs unless the man in charge knows what to do and has the courage to cut away half of them before any injury to the tree actually takes place. Let us consider then such trees as I have described are planted and left alone afterwards. This is extension, and has been advocated again and again. Leave them alone is the motto of the extensionist. I once went a long journey to see some of these extension-grown trees towards the end of August or the beginning of September. They were bearing a good crop of moderate sized fruit, but the branches were devoid of that stability that is characteristic of those grown on what are termed restrictive principles. I say they lacked stability, for they had not strength to support the crop, and with but few exceptions the branches arched in a graceful manner towards the ground. A severe storm would, I think, have settled this natural system, in that garden at any rate.

Trees to make good pyramids and bushes should be cut down to within 9 to 18 inches of the ground ; the former for bushes, and the latter for pyramids. It is immaterial whether bushes have a centre or not. The Apple adapts itself to the bush system of culture even better than the pyramid ; they are easier kept open, being less liable to become crowded towards the top. Good management only is needed in either case. The pyramids would thus make from three to five shoots, besides a leader. Early in August all the shoots should be topped, the leader as well. Trees of this stamp have a good foundation, and fruit buds soon commence to form after planting. If planted early and well, and the stocks have not stood too long on the ground, good growth will be made the first season. In August again these would be topped, so that little would remain to be done in winter.

Such are a few thoughts on two systems of culture. The following of the one or the other may lead to beneficial results or the reverse. The one is calculated to build up a healthy robust tree, and the other to bring about disease, decay, and it may be early death, or at the very least keen disappointment.

LUCULIA GRATISSIMA AT ORCHARDLEIGH.

A VERY fine specimen of this somewhat rare trailing shrub has been flowering most profusely in the conservatory at the Rev. W. A. Duckworth's delightful residence, Orchardleigh, near Frome, Somerset, for some few weeks past, pervading the atmosphere of this structure, as well as adjoining rooms, with its agreeable and refreshing perfume for which the *Luculia* is famous. The plant is, as might be expected, very highly valued by its owner, putting forth, as it does, its unique scented and delicate coloured inflorescence at a time when flowers are in great request for conservatory adornment. It covers a lofty wall some 15 feet, I should say, or more in height, and extends several feet along the wall, from which it is allowed to depend as naturally as possible, so that the flower heads can be seen easily from the drawing-room, which has an elegant glazed door directly opposite, so arranged, perhaps, that a good view may be had of this particular plant while in bloom.

Quite a small and narrow border accommodates it ; indeed, it would seem remarkable that so healthy and large a plant could flourish as it does with so small an amount of soil. Water, no doubt, is given sufficient to sustain it perfectly, but Mr. T'Anson, the practical head gardener in charge, is of the opinion that a top-dressing of rich soil given in the autumn just at or prior to the time it forms the flower buds in autumn, acts as a great incentive to additional and renewed vigour. *Luculia gratissima* has a fame for tardiness in striking, hence, no doubt, the reason why it is so seldom found in such structures, for the which it is eminently fitted, as plainly demonstrated at Orchardleigh. Few flowering plants would continue in so satisfactory a condition in a

position such as it occupies here, shaded almost on all sides, and receiving direct light only from the roof. Separated by a narrow path are stately *Cimellias* planted in a spacious bed, and grown into a dense thicket of healthy leafage, and over these are trailing Passion Flowers and other plants, all in turn obscuring light so essential to most permanent hardwooded flowering plants, and yet in spite of this, every growth is crowned with a truss of delicate blossom every year.

Though usually considered difficult to propagate, Mr. T'Anson has succeeded on each occasion he has attempted to root cuttings ; and although they are slow in making a start, the cuttings, which are left undisturbed in the original pots until spring, are started into growth, both root and branch, when repotted into fresh soil and larger pots. Half-ripened growths of the current year are chosen, taken off with a slight heel attached, and inserted round the sides of the pot in a sandy mixture of soil, shortening back the point or growing end to within a few inches of its base, or to where the shoot is firm and woody textured. For cut flowers it appears to be of little value, but its sterling worth as a wall plant is so pronounced that no attempt is made to put it into use in a cut state here. When gathered the flower quickly droops, lasting but a very short time in a presentable state, but by cutting it an hour or two before arranging it in the vases it may be made to last some time longer than it otherwise would by immersing it in a tank of tepid water. Another fine wall plant in the conservatory at Orchardleigh is *Acacia grandis*. This covers a similar space to the other plant under notice, its growth being of the most healthy description, and perfectly furnishing the wall on which it is trained. During its flowering season it must be a fine sight with its richly coloured ball-like flowers, and even without bloom it makes an excellent plant for a trellised wall, where plenty of head room is available, on account of the pleasing shade of green colour of its foliage and the dense character of its growth. This, like the *Luculia*, is favoured with a shady aspect, and has only a narrow border to grow in, but a frequent supply of water appears to be the only thing needful for maintaining ample leafage and a healthy dark green colour, satisfactory results for the labour bestowed.—W. S.

SPARROWS, PRO AND CON.

THE Selbornians have taken up the oft debated sparrow question in their magazine, "Nature Notes," where it has been discussed with some energy, though nothing particularly important has been produced as fresh evidence. Mr. Aubrey Edwards urges that it is the duty of all true Selbornians to destroy the sparrow, on the principle, I suppose, that the bird is a destroyer of what should be cherished and preserved, that is the house martin, which he believes the sparrow would well-nigh exterminate if he had matters all his own way. "Years ago," says Mr. Edwards, "the house martin, a gentle and useful bird, was far more common than it is now, and what is the reason? The martin is afraid of the sparrow, as indeed most birds of his own size are, and some much larger too ; therefore, when a pair of martins have constructed a nest, and an audacious sparrow coolly drives them off to take possession for himself and his partner, the uncomplaining martin goes away to try again.

This experience may happen more than once in the season to a couple of martins, and since this goes on nearly everywhere the yearly hatch of martins diminishes, eggs are dropped by the wayside, or laid and deserted. Nor does the sand martin escape ; when its nests happen to be made upon banks near houses or farm buildings they become objects of attack. Miss Isabel Fry adds that even chaffinches and yellowhammers are driven away from some localities by the sparrow, an "ugly and uninteresting" bird, and she regrets to find that in some counties there is an increase of late, due perhaps to migration. Mr. W. R. Riley quotes a recent instance of a fact more than once recorded, that when a body of farmers set themselves steadily to the work of sparrow extermination, afterwards insects increased so rapidly that rewards had to be offered for the preservation of their nests.

He thinks the balance of Nature suffices, and that the killing of sparrows should be left to the sparrowhawk. No one has been able to throw any doubt upon the fact, that all through the breeding time sparrows take hosts of insects to feed the young broods ; therefore, he says, we must set eight months' usefulness against four or five months in which they may consume a good deal of seed and grain. His seed-eating propensities, too, are not limited to cultivated plants ; he devours those of many unpleasant or injurious weeds. None of his defenders, however, are able to justify his conduct with regard to Peas ; the tender shoots braving the cold winds of spring are his speciality, and the nestlings are taught by their parents to attack the ripening green pods. Nor

can anybody who has watched him deny that he has a love for Crocuses and other bulbs, nor does he spare the young buds of some fruit trees, other food being scarce.—ENTOMOLOGIST.

PLANT NOTES.

PRIMROSE SUNFLOWER.—It appears a good time just now to draw attention to good plants which have been tried. Among the most satisfactory that have passed through my hands is the Primrose Sunflower, which I cultivated for the first time last year. I put out about thirty or more young plants, which were raised from seeds sown in April and which in due time were dibbled in without any particular care. The tallest of them rose to a height of 7 feet, and they proved extremely decorative. It is, however, as a producer of cut flowers that this Sunflower is so extremely useful. The flowers are single, and each plant varied in some particular from its neighbour. In some the central disc was very dark, in others light. Some flowers were large and the single row of florets somewhat dishevelled, others were smaller and quite florist-flower like in appearance, while in colour there were many gradations of pretty light yellow; the leafage is also very pretty. The flowers were freely cut for room decoration, and were used either by themselves with foliage, or in conjunction with other flowers of the season.

DWARF MINIATURE SUNFLOWER.—This has been grown for several years, and I only refer to it here in order to remind those who may like a good plant for cutting that they will find in this a desideratum. The flowers are small with a dark disc and bright yellow florets. The foliage also is pretty, and the whole plant, when allowed room to develop, is as ornamental as a plant as the flowers and foliage are useful for decorative purposes.

ASTERS.—Last year I sowed several packets of Snowball Asters, and found it one of the best. Shall I say the best of its type? The flowers were more like a reflexed Chrysanthemum than an Aster, and for certain purposes they proved very useful. Why is it that none of our seedsmen import seeds of single Asters? These are among the prettiest of flowers for cutting, and I am certain, if once known, and seed is to be had, that they would become very popular.

BEDDING ASTERS.—I was somewhat astonished last autumn to find how very fine these are now to be had. I do not grow them for the one reason that the season of their flowering is too quickly over, but in many gardens this would be a drawback of slight importance. The beds which I saw were so fine that I took a note at the time. The colours, in addition to white, were scarlet and rose; but I believe there is a greater variety to be had. The plants were dwarf, equal in height, and one mass of flower.

HYACINTHUS CANDICANS.—This of course is not new, and I have grown it for a number of years; but last year I planted more of it and cut it more freely than I had been able to do before. The entire spike was cut and set up in large flower glasses. I think, with the exception of the Gladiolus, that no autumn flower is likely to be more valuable than this. Like the above, every unopened bud opens in water. I have heard this flower condemned as being of little value, but if employed as just mentioned, I am certain those who in the past have been dissatisfied with it will be glad to cultivate it again. I saved a large quantity of seeds which will in due course be sown, and I have in the mean time largely increased the number of flowering bulbs.

CACTUS DAHLIAS.—These are *par excellence* among the best of outdoor flowers for cutting. But, unfortunately, they are increasing in a perplexing manner, and many shades of colour are being introduced which are of no value. The best, so far as my experience goes, is the old Juarez. No variety has displaced this, the crimson form being not nearly so good. The best white is Henry Partick, a most beautiful form of purest white. I had a "better" pointed out to me one day in the autumn, but could not "see" it. In yellows, William Pearce, a very dark shade, the bloom of beautiful form though rather small, and Robert Mayher are the two I like best. General Gordon, dark orange, is a useful flower.

TWO USEFUL FUCHSIAS.—Both the varieties I refer to were cultivated in small pots (5-inch, I think) for table work. They are quite distinct in habit—the one a very small flowered single variety, the other one of the largest of the doubles, but as a pair of flowering decorative plants there are few things which surpass them. The one variety is Countess of Aberdeen, with a small blush coloured flower. When grown in a small pot and flowering freely this is most charming. The other is Mrs. E. G. Hill, one of the monstrous double forms. The habit of the plant is excellent, the side branches being evenly placed so that the weight of the flowers causes them to droop in a most elegant manner. The

corolla is pure white, and the sepals of a clear and rich crimson tint. It is altogether a most striking variety. These are by a long way the two best varieties I have yet had for cultivation in small pots, and, a thing that does not always happen, every gardener who saw them had the same opinion, so much so, that my stock was reduced to a very low ebb before autumn.

CROTON, "GOLDEN RING."—I have not grown this variety, but it was very conspicuous among the table plants shown at the International Show in Edinburgh last autumn. Most of the plants bore the appearance of having been distributed from a common centre at a period not long prior to the date of the Show, and were charming little examples of beautiful colour and the most graceful habit. Croton growers would do well to add this to their collections, and rather dispense with inferior sorts in order to find room for it.—B.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

THE annual general meeting of the above Association was held in the Horticultural Club, Hotel Windsor, Victoria Street, S.W., on Thursday, January 21st, at 6 P.M., Dr. M. T. Masters presiding. There was a small muster of members owing to the prevailing illness, and over fifty letters were read from those who were unable to attend in consequence. The business comprised the reception of the Committee's report and financial statement for the past year, and after some discussion the Chairman moved that they be adopted, printed, and circulated, remarking that a great amount of good work had been accomplished at an extremely small cost. He referred to the satisfactory increase in the number of members, and wished the Association a prosperous year. The resolution was seconded, and supported by several members, and carried unanimously.

The officers of the past year having been re-elected and several additions made to the Committee, some attention was devoted to the programme for the present year, and it was announced that arrangements were being undertaken for three provincial conferences and one in the metropolis, but the exact places and dates could not be determined, as applications had been received from several important societies.

ANNUAL REPORT.

In presenting their Report for 1891, the Committee congratulate the members upon the increased attention now being paid to the special objects of the British Fruit Growers' Association—i.e., the extension of profitable fruit culture in Great Britain and Ireland. Attention has been prominently drawn to the fact that, when conducted upon right lines, fruit growing is an important industry, which has been too long neglected, and abundance of evidence is forthcoming that the interest being aroused is productive of much benefit.

The greatest care has been exercised in the appointment of lecturers, and in the revision of the papers, to avoid extravagant or misleading statements, and to supply what intending cultivators need—practical reliable information respecting the best methods of rendering land under fruit culture a profitable employment for labour and capital. That some effect has been produced is shown by the agricultural returns. In 1888 there was a decrease of land under orchards of 3056 acres; in 1889 an increase of 719 acres is recorded; in 1890 the increase was 2408. The increase of acreage under small fruit in 1889 was 5209 acres, in 1890 it was 4301 acres, showing a total increase under fruit for two years of 12,637 acres.

Such a rapid advance as this renders the dissemination of reliable information and the guidance of an association of practical men the more necessary to counteract the effects of incompetent advice and excessive estimates of the profits derivable from this important industry. For good British grown fruit there is an unlimited demand, and the best market authorities state that they can never procure sufficient first class fruits. For inferior samples there is no demand except at very low prices. The points cultivators have to bear in mind, therefore, are to select the best varieties adapted to their districts. Plant and treat the trees well, gather, sort, and pack the fruit carefully, send it to the best markets, and they may safely count on fair returns.

The work of the Association continues to increase in importance, and during the past year the Committee has been consulted upon several public matters connected with fruit culture and horticulture generally. By special request a sub-Committee was appointed to prepare a scheme for the introduction of horticultural teaching into national schools, and this has been favourably received by the Education Department.

Later in the year the Committee was also consulted by the Agricultural Department of the Irish Land Commission concerning the extension of fruit culture in Ireland.

Having regard to the action taken by the County Councils in promoting technical education the Committee prepared and issued a synopsis of a series of lectures on fruit culture as recommended by the Association, and this was forwarded to the chief officials throughout the country. Many communications have been received concerning this, and the Committee has been consulted by the chairmen and secretaries of some of the more important counties where horticultural education has been taken up. Several members of the Association have been engaged as instructors, and the Hon. Secretary has been appointed in a similar capacity by the Hampshire County Council.

Turning to the ordinary business of the year members may be reminded that four Conferences were held, all of which excited much interest in the respective districts. The first took place on August 4th, at Carshalton, in conjunction with the local Horticultural Society. Sir James Whitehead, Bart., presided, and addresses were delivered by Mr. J. Wright, Mr. J. Cheal, Mr. A. Bath, and Mr. G. Hammond. The meeting was well attended, notwithstanding the extremely unfavourable weather which prevailed all the afternoon.

The next was held at Cardiff on August 12th in conjunction with the local Horticultural Societies' Exhibition in the Sophia Gardens. A large tent was devoted to the Conference, which was well attended, the Marquess of Bute presiding, and being supported by the Rev. G. A. Jones, Alderman Lewis (Deputy Mayor), Mr. T. F. Rivers, and others. After a few words from the Chairman Mr. Gordon gave a review of the work of the Association and the extension of fruit culture. Mr. A. Pettigrew then read an excellent paper on "Hardy Fruits for South Wales," and Mr. E. J. Baillie followed with an address on "Fruit Culture as an Industry." Some discussion took place, in which several prominent local horticulturists took part, including Mr. W. J. Grant; and the business of a very successful meeting concluded with a hearty vote of thanks to the Marquess of Bute for presiding, proposed by Mr. Rivers and seconded by Alderman Lewis.

The Conference at the Crystal Palace on September 4th was most satisfactory. A large audience of well-known gardeners, nurserymen, and amateurs assembled in the Garden Hall to listen to the addresses by Mr. G. Hammond on "Gathering, Packing, and Marketing Fruit," and by Mr. J. Wright on "Pruning." Mr. T. F. Rivers presided, and introduced the subject in a brief but appropriate speech, and the papers were followed by considerable discussion, that on "Pruning," which was illustrated by diagrams, evoking much interest.

Several members of the Association attended the Edinburgh International Show on September 10th and 11th. At the dinner of the Royal Caledonian Society, held in the Waterloo Hotel on Sept. 10th, special reference was made to the work of the British Fruit Growers' Association by Mr. William Thomson of Clovenfords, who commended most highly the methods adopted and the work performed. On September 10th, at 3.30, the British Fruit Growers' Association held a conference on "Fruit Culture," in conjunction with members of the Royal Caledonian Society, in the Waterloo Hotel, when Councillor Colston took the chair, and there was a representative gathering of northern horticulturists. The Chairman, in a few well chosen words, explained the objects and work of the Association, and Mr. G. Gordon followed with some observations on the "Present Condition and Prospects of Fruit Culture for Profit;" Mr. Dunn of Dalkeith gave an interesting address upon "Fruit Culture for Profit in Scotland," which was followed by a discussion, in which Mr. Dickson of Belfast joined. Mr. Sinclair of East Linton discoursed on the "Culture of Strawberries for Market" in an excellent and practical manner; Mr. Carmichael and Mr. Machattie taking part in the discussion. Mr. Joseph Cheal then read an admirable paper on "Gathering, Packing, and Storing Fruits," and the meeting closed with votes of thanks to the Association and the Chairman.

Following the example of the Association, an interesting and important conference on fruit culture was held at Manchester during the past year under the management of Mr. Bruce Findlay, at which several of our members contributed papers, Lord Derby presiding on the first day, and Sir James Whitehead, Bart., one of the Vice-Presidents, took the chair on the second day.

Arrangements are being made for holding an International Fruit Show in London during the autumn of the present year, and a representative of the Association has been appointed as a member of the Provisional Committee entrusted with the preparation of a scheme for what is likely to prove one of the most important horticultural events of the year.

The Committee meetings have been well attended, and during the season two short papers on fruit culture have been read after the conclusion of the business, and it is desired to increase the interest of the meetings in this way as far as possible. Special thanks are due to all the members who have so readily given their assistance at the different meetings, both in making the arrangements and reading papers.

It is satisfactory to announce that the number of members has doubled within the past year; but, owing to the low rate of subscription, the funds at the disposal of the Association are not yet adequate for the work required to be performed.

FINANCIAL STATEMENT.

JANUARY 1ST TO DECEMBER 31ST, 1891.

RECEIPTS.			EXPENDITURE.		
	£	s. d.		£	s. d.
Subscriptions and donations ..	56	17 0	Conferences	14	0 0
Balance from 1890	1	15 10	Report and rules	8	10 0
			Circulars, cards, and programmes	3	5 0
			Stationery, books, &c.	5	10 0
			Committee meetings	3	10 0
			Postage and clerical assistance	15	10 6
			Miscellaneous travelling expenses and sundries	6	0 0
			Balance	2	7 4
	£58	12 10	Total	£58	12 10

Examined with vouchers and found correct.
(Signed)

JOHN ALEXANDER LAING.
GEORGE H. RICHARDS.



EVENTS OF THE WEEK.—The annual dinner of the Fruiterers' Company, which was to have taken place last Monday at the Hotel Métropole, has been deferred a month in consequence of the death of the Duke of Clarence. On Monday, February 1st, the Provisional Committee of the London International Fruit Show will meet at Anderton's Hotel, Fleet Street, at 2.30 P.M. The sales advertised for this week by Messrs. Protheroe & Morris include Lilies and other bulbs on Thursday (to-day), Orchids on Friday, and miscellaneous roots and plants on Monday and Wednesday.

— **THE WEATHER IN THE METROPOLIS** has been variable during the past week, sharp frosts alternating with dull, moist, close weather. One day was exceptionally fine for the time of year—namely, Monday, January 25th, the sky being cloudless, the sun bright, and the whole aspect quite spring-like.

— **MEMORIAL WREATH.**—We are requested to state that on the day of the funeral of the Duke of Clarence and Avondale Messrs. Sutton & Sons of Reading sent a magnificent wreath of Lilies of the Valley and Violets, which had been prepared by them by Royal permission, and that it was personally presented at Windsor with an expression of their respectful esteem and loyal regard for the late Duke of Clarence and Avondale by the members of the firm, Martin J. Sutton, Herbert Sutton, Arthur W. Sutton, and L. G. Sutton.

— **MR. F. C. PAWLE** writing from Northcote, Reigate, says:—"Will you kindly notify in your next issue that the Reigate Rose Show is fixed for Saturday, 9th July?"

— **THE REV. H. H. D'OMBRAIN** wishes to state that the article in the "Rosarian's Year Book" on Roses Near Big Cities was contributed by Mr. James Bateman, Rose Vale, Archway Road, Highgate.

— **EXTRAORDINARY RAINFALL IN QUEENSLAND.**—A Reuter's telegram of the 25th inst. says an extraordinary rainfall, measuring 19½ inches in twenty-four hours, has fallen at Townsville, the most important town in Northern Queensland. The whole district is under water. Several buildings have been carried away by the floods resulting from the heavy rain, and all railway traffic is suspended.

— **GARDENING APPOINTMENTS.**—We learn that Mr. W. J. Ireland, who for the past four years has been head gardener to Sir H. Hussey Vivian, Bart., M.P., Singleton, Swansea, is appointed head gardener to Jacob Wakefield, Esq., Sedgwick House, near Kendal, Westmoreland, the gardens of which are very fine and in high keeping. Mr. Frank Surman, late foreman in Singleton Gardens, has been appointed gardener to F. D. Mears, Esq., Claremont, Swansea.

— **PRESERVED FRUITS** are now eaten on so large a scale that caution should be used, says the *Hospital*, in their consumption. Though glass and porcelain vessels are used much more frequently now than was the case a few years ago, tins are still used to a very considerable extent. In most cases tinned fruits should be avoided, for there will often be found to exist in the fruits so preserved metallic impurities which are likely to endanger the health. No fruits containing acid juices should be preserved in anything but glass or earthenware, as has been pointed out by the Medical Officers of Health for Marylebone; and if people are offered such fruit in tins they will be wise to decline them.

— **HARDINESS OF SEAKALE.**—The old or purple tipped variety is perfectly hardy, at any rate ours has never yet been injured by frosts, but I cannot say as much in favour of the newer form known as the Lily White. Very many of the crowns of the latter that unfortunately were not either moulded over or got up ready for forcing prior to midwinter are now of no service, being completely blackened through by frosts. It is, however, so much superior in both appearance and quality to the old form that its being somewhat tender will not prevent me from growing it much the most extensively for lifting and forcing. A ridge of soil or a little strawy litter is sufficient to protect the crowns from frost, a covering of snow answering equally as well as a temporary protection.—M. H.

— **PRESENTATION TO MR. LEWIS CASTLE.**—After the annual dinner of the British Fruit Growers' Association at the Hotel Windsor on January 21st, Mr. Joseph Cheal, on behalf of the members, presented the Hon. Secretary with a handsome gold watch and chain. The watch bore the following inscription: "Presented to Mr. Lewis Castle by the members of the British Fruit Growers' Association as a token of appreciation for his services as Honorary Secretary."

— **DEATH OF MR. ROBERT J. PARKER.**—Mr. Robert J. Parker of Tooting was for many years a prominent man in the horticultural world, but for some time past lived in retirement. Under the partnership of Parker & Williams, the now large and important business of Messrs. B. S. Williams & Son, Holloway, was established, and after the dissolution of that partnership Mr. Parker made hardy herbaceous plants a speciality, and was a pioneer in the revival of interest in them. He was a very able man and highly respected. He died at Clapham on the 21st inst, in the sixty-fifth year of his age.

— **DISSOLUTION OF PARTNERSHIP.**—We are desired to notify that the partnership formerly existing between Samuel Clay and James Levesley, manufacturers of Clay's fertiliser, having been dissolved, the partnership business will in future be carried on by the said Samuel Clay in conjunction with his son Samuel Charles Clay, the proprietor of S. C. Clay's invigorator, and they will in future manufacture both the fertiliser and the invigorator under the name or firm of Clay & Son, at Temple Mill Lane, Stratford, London, E.

— **AT Howden on January 19th** was interred all that was mortal of the late MR. JOHN BEARPARK, who for several years was well known throughout the East Riding of Yorkshire as a most successful grower and exhibitor of Grape, Peaches, Strawberries, Tomatoes, Cucumbers, &c. Although only forty-one years of age the large concourse of people who attended the funeral proved conclusively how highly he was respected in life. He was a most genial man, and all his brother gardeners were always sure of a true Yorkshire welcome from his kind-hearted wife and himself. The late Mr. John Bearpark was the only son of Mr. Bearpark, Farm Bailiff of Sowerby House, Bridlington.—WELTON DALE.

— **A NEW chemical industry** has arisen, that of COLOURING NATURAL CUT FLOWERS. A Paris correspondent writes:—"For some time the florists have been selling at fancy prices all kinds of flowers, which were supposed to be the roc's eggs of horticulturists, such as sky blue Orchids, pink Narcissuses, green and violet Roses, and ultramarine Chrysanthemums. It now appears that the flowers were simply dyed by a new process, which MM. Charles Girard and Pabst have revealed. The colouring matters are dissolved in variable quantities according to the depth of the hues that are to be obtained in filtered water, in which, to hasten the solution of the colouring matter, a few drops of alcohol have been poured. The stalk ends of the flowers are then placed in the dye, and the fluid by capillary attraction is drawn up into the flower. The dye, however, only colours freshly cut flowers, nor will watering the roots of a plant with the colouring matter produce the effect."

— **BOURNEMOUTH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—"Grapes for Exhibition" was the subject of the paper read by Mr. C. Warden, gardener at Clarendon Park, Salisbury, at the meeting of the above Society on Wednesday, January 20th. Mr. A. H. May, gardener, Studley, Bournemouth, occupied the chair. Mr. Warden treated the subject in a thoroughly practical manner, giving a list of the best varieties suitable for exhibition, with the names of the raisers and those who had brought them prominently before the public, and also gave valuable information as to how the different varieties ought to be treated so as to secure success. A hearty vote of thanks was accorded to Mr. Warden for his excellent paper by the large number of members present. The following is the programme of this Association for the season. The papers will be read at the Society's room, Tregonwell Assembly Rooms, Commercial Road, Bournemouth, at 7.30 on Wednesday evenings:—January 27th, amateur dramatic performance in aid of the Gardeners' Orphan Fund. February 3rd, Questions. February 17th, "An Epitome of Chrysanthemum Culture," Mr. E. Molyneux, gardener, Swanmore Park, Bishops Waltham. March 2nd, Questions; exhibitions of Hyacinths, Dielytra, and Spiræa. March 16th, "Some Diseases of Plants," Miss Rooper. April 6th, Social evening. April 20th, "The Melon," Mr. H. W. Ward, gardener, Longford Castle, Salisbury. May 4th, Questions; exhibition of foliage plants and flowering plants. May 18th, "Insects," Mr. J. Kettle. June 15th, Questions; exhibition of Roses (cut blooms, distinct), Zonal Pelargoniums, and Strawberries,

— **A PREVENTIVE FOR GRAPE MILDEW.**—For the downy mildew, and for similar plant diseases generally, the Bordeaux mixture adheres with great tenacity to the leaves and other parts of the plants, and is not easily washed off even by heavy rains. On the other hand, it is much more expensive, and more inconvenient to prepare and to apply, than the ammoniacal carbonate of copper solution, besides being liable to discolour the fruit when late applications are made; so that, on the whole, we believe it would be no loss to the fruit-grower if the use of Bordeaux mixture were to be abandoned entirely. With timely applications, repeated frequently during the early part of the season, the Grape-grower will find the ammoniacal solution of carbonate of copper fully sufficient for the control of the downy mildew and black rot, and this with far less expense and far greater convenience than by bothering with the whitewashy Bordeaux mixture.—G. R. (in *American Garden*).

— **THE WAKEFIELD PAXTON SOCIETY.**—At a recent meeting of the members of the above Society, held on Saturday evening, Alderman Milnes presided, and Mr. J. G. Brown of Stanley was in the vice-chair. Before the business of the meeting was proceeded with, Alderman Milnes referred in appropriate terms to the death of Mr. Thomas Senior, solicitor, a former President of the Paxton Society, and moved a vote of condolence with his widow and family. The motion was seconded by Mr. G. W. Fallas, one of the Hon. Secretaries, and unanimously carried. Mr. T. Tate, F.G.S., Leeds, delivered a long, interesting, and able address on "The Evolution of Plant Life," which was most attentively listened to and greatly appreciated. The lecturer, who has appeared before the Wakefield Paxtonians in previous years, illustrated his subject by a number of diagrams and botanical specimens. He treated a difficult subject in a manner which rendered it very clear and simple to his audience. With a view to help them to clear their minds, and to assist them in the study of the evolution of plant life, he dealt specially on the three stages of it—viz., progressive, arrestive, and retrogressive. Mr. H. S. Goodyear of the Westgate Board Schools (an old student under Mr. Tate), proposed a vote of thanks to Mr. Tate for his very compact and interesting lecture. Mr. Arthur Goldthorpe seconded the motion in an exceedingly witty, humorous, and characteristic speech. The motion was heartily carried, and suitably acknowledged by Mr. Tate.

— **THE FRENCH VINTAGE IN 1891.**—The phylloxera has done so much mischief in the French vineyards that it would be idle to anticipate such splendid returns of the Grape harvest as were made about fifteen years ago, the high water mark having been reached in 1875 when, with about five and a half million acres of vineyards, the yield was not far short of 2000 million gallons. Immediately after this the quantity of wine made began to decline, and as year after year more vineyards were rooted up, the area under cultivation diminished, having been reduced by nearly a million acres in the course of ten years. The quantity of wine made varied, of course, from year to year, according to the weather; but for some time it varied between seven and five hundred million gallons, the worst year having been 1889, when little more than a fourth of the wine made in 1875 was produced from the French vineyards. There was an improvement in 1890, when the total yield was about six hundred million gallons, while the improvement was fully sustained last year, when, according to the official figures published by the Ministry of Finance, the quantity of wine made was about 679,000,000 gallons. But what is perhaps of the more real importance the official report goes on to say that the efforts to combat the phylloxera have so far been successful that many vineyards have been planted with fresh stocks, and may be expected to bear very shortly, so that it does not seem unreasonable to look for a constant improvement in the returns. With regard to the value of last year's wine crop the Ministry of Finance estimates it broadly at forty millions sterling; but, so far as quantity goes, France, which before the phylloxera exported about eighty million gallons and imported only six million gallons, does not now export fifty millions, while her imports have gone up to over two hundred million gallons—figures which bring the mischief done by the phylloxera into very distinct relief.

PRIMULAS, PAST AND PRESENT.

As Mr. Arthur W. Sutton reminded those who listened to his most interesting paper at a meeting of the Royal Horticultural Society on November 11th, 1890, there are many horticulturists now living in whose early childhood the Chinese Primula had neither been seen nor heard of in this country. Consider for a moment what this means. During the threescore years and ten of man's allotted span a course of development has been going on that has had results as striking as they are rapid. In

one lifetime we have the transformation from a single ineffective species to a wondrous diversity of brilliant forms, comprising *en bloc* a class of the most beautiful and valuable flowering plants that adorn our houses in autumn and winter. A continued process of intelligent hybridisation has had remarkable results in many cases, but it will be generally admitted that in none have they been greater than in that of *Primula sinensis*.

It will be unnecessary to remind those who heard his lecture how admirably the representative of the great firm which has done so much in improving Primulas and other choice florists' flowers traced their progress step by step from the period of introduction up to the present time. The species came to us in or about 1820 from China, but it was noted as a curious fact that while in 1852 the Reading firm were distributing seed of *P. fimbriata* at 1s. per packet, the following year the same variety was offered at 6d., and mixed seed of *P. sinensis* at 3d. Evidently the demand was not satisfactory, and it may be presumed that although there were suggestions of usefulness about the plant, it had by no means made a great impression during half the period that has elapsed since its introduction. Possibly it was not at all a free bloomer in the sense that we should use that phrase now; and, moreover, the flowers were doubtless small, and lacking brilliancy of colour. Some of the authorities referred to in connection with the introduction of *P. sinensis* omitted reference to the hue of the flower, but Mr. Henri de Vilmorin was quoted as stating that the first plant introduced had "a pale pink corolla, almost flesh colour," and that "the white variety was the first sport obtained. The petals of the pink variety were rounded, cleft in the middle, and heart-shaped if taken singly. The trusses bore three and even four whorls of pale small flowers; the leaves were palmate, and not Fern-leaved." From these words of the famous French horticulturist we may form some idea of the *Primula* of seventy years ago. It is likely enough that the *P. sinensis* of that time had flowers not exceeding in size inferior varieties of *P. Sieboldi*. Messrs. Sutton have in their nursery now plants in which they have developed a mossy-foliaged character, and which is both distinct and beautiful. In their present early stage the plants in this section have small flowers and small trusses, and it is possible that in the evolution of a new style of leafage there has been a reversion to primordial blossoming, at least as regards size and profusion.

Primulas at 3d. per packet clearly did not mark a very rapid rate of progression, but from 1853 the work of improvement went rapidly on. Not having a long line of catalogues by me to which to refer, I cannot say when the scale of prices for seed changed from a downward to an upward grade, but could this be followed out it would no doubt be found a pretty sure indication of uninterrupted progress. It is certain that varieties improved with great rapidity. Several able florists were at work upon them, and year by year greater size and greater freedom of blooming with richer and more diversified colours, were obtained. The time came at length when the *Primula* was so improved as to take rank as a florist's flower of the first order of merit. This, roughly speaking, was twenty years ago, but instead of marking something of a climax to the improvement of varieties it was apparently little more than the beginning. Five years later excellent strains of red and white (*P. sinensis fimbriata rubra* and *alba*) were to be had, but these were still further improved on. Chiswick Red marked a great advance. It was of good habit, very free, and the colour was exceptionally brilliant; but the pip was only of medium size.

In later varieties there was increased size and substance of bloom, Messrs. Sutton being very prominent amongst those who produced larger flowered varieties. From 1873 up to the present time they have introduced some magnificent forms, and in a recent visit to their nursery some of the best of these were noted. Ruby King, introduced and certificated by the R.H.S. as far back as 1879, is still unexcelled for colour—a splendid rich ruby. It remains in great demand, and is likely to do so, for in addition to distinct and effective colouring it is a sturdy grower and a good bloomer. Pearl, white, is only a year younger, and is one of the most sought after of the whole collection. It is a sturdy and constant grower, giving no trouble, and invariably producing a fine truss of its very large and beautifully fringed flowers.

In 1881 a beautiful Fern-leaved variety named Rosy Queen was introduced. It is very dwarf, compact, and free flowering, pleasing in colour and of great decorative value. Later on came other charming varieties in the same section. Snowdrift is of phenomenal earliness, flowering well in three months from the date of sowing, and remaining in beauty until late in winter. It is the first to come and one of the last to go. The flowers are white as the driven snow, and cover the plant like a cloud of white butterflies. Purity is of a different character, but equally lovely. It has dark foliage and pure white flowers of great size. Everyone should grow it. Gipsy Queen has brown foliage, much darker than that of any other variety, and white flowers sometimes spotted with red. It is very handsome and a fine variety for decoration. One of the most beautiful Messrs. Sutton have is that named Reading Pink. It was introduced in 1881, and its large size, lovely colour, free-blooming and vigorous habit soon established it as a firm favourite. Although eleven years have elapsed since its introduction it is in greater demand than ever. In this charming *Primula* large pips and profuse blooming are combined. Reading Scarlet is one of the most beautiful of the reds and is very early; the flowers are of medium size, freely produced and very brilliant in colour. Giant Crimson is of a totally different character, the flowers being of enormous size, and the colour intense crimson. The foliage is dark and very substantial. Giant White is a grand companion for it, having a fine bushy habit and very large

flowers. The two latter are only three years old and indicate what an advance there has been in size of bloom. They might well be chosen if it were desired to indicate the advance that has been made during the seventy years that we have had the flower, for they mark the highest point to which the *Primula* has been carried. The collection is enriched by two admirable blue forms, one a Fern-leaved and the other of the ordinary type. Reading Blue is remarkable for clear colouring; a well formed truss and compact growth, the Fern-leaved variety being a freer bloomer but having somewhat smaller flowers. One named Terra Cotta as the nearest indication of its distinct shade of colour will spring into great demand when introduced. It has immense flowers of a brilliant rosy salmon or terra cotta colour, and is extremely striking. Another choice variety is a Fern-leaved form with scarlet flowers, but owing to its being a very shy seeder it has been found impossible to offer it. Giant White, Fern-leaved, also has enormous flowers and is exceptionally fine, being a free bloomer, but seeds very shyly.

The doubles include some very fine varieties. Double Carmine combines exceptional richness of colour with great freedom of blooming. Double Blue produces large flowers of fine colour, and is compact in habit. Double Rose, too, is exceptionally compact, and is a very profuse bloomer; moreover, the colour is very pleasing; altogether a charming form. Carnation-flaked almost resembles a miniature flaked Carnation, the flowers being flaked with purple on a white ground; it is, of course, quite distinct, and, what is more, very beautiful. The Double White variety and the Fern-leaved Double White are both splendid selections, being very free, and with fine flowers. Double Scarlet is very brilliant in colour, and displays a large well-formed truss.

Trial pots of all the varieties are grown, and plants raised from the seed distributed during the present season are seen flowering in small pots. This plan is followed for the purpose of avoiding the faintest possibility of sending out seed that is not true to name, although precautions previously taken would seem to render this almost superfluous. It "piles conviction on conviction's head," and is a part of the policy of the firm to spare nothing, either in time or money, to secure absolute confidence on the part of their customers.

If the question were asked, Are Primulas profitable? those who do not take into consideration all the circumstances, but only recall the fact that packets are sold at half a crown and 5s. each, might be inclined to reply in an affirmative so emphatic as to lead to the impression that *Primula*-growing is a mine rich with ore. When it is recollected, however, that for many years past a long course of experiments has been carried on, requiring a constant outlay for labour and cultural requisites, and that, moreover, some varieties seed so shyly that a very large number of plants have to be grown to yield a very small supply, it becomes evident that those ideas must be modified. Some varieties yield seed so scantily as to be absolutely unprofitable, for the price that would represent a fair return to the grower would be so high as to check the sale, and a balance has to be sought in others that are more fertile.

Cultivators undoubtedly owe a great deal to those who, like Messrs. Sutton, have devoted the most assiduous care to the improvement of the flower over a long course of years. It would be superfluous to say how valuable the *Primula* is, or to comment at length upon its culture, for both are now well known; but we can form some idea of the place it fills by estimating the gap that would exist without it, and in looking around both private establishments and the markets the truth comes fully home to us. It is not likely that the work of improvement will now be relaxed. The striking results already attained will be taken as the basis of future operations, and so we may look with constant interest to the future. That all which skill, care, and foresight can effect will be done a visit to Reading makes abundantly clear, and confident of this, further results may safely be left to time.—P.

THE LATE MR. C. M. MAJOR.

THOUGH the death of this gentleman occurred on the last day of the old year it has only recently come to our knowledge. The late Mr. Major of Cromwell House, Croydon, was an ardent lover of plants, and his garden was a source of real pleasure to him. He took possession of Cromwell House more than thirty years ago as a temporary residence, and kept his then newly acquired Sikkim-Himalayan *Rhododendrons* in his drawing-room till he could erect for them a small glass structure. As the plants grew and others increased he increased the number and size of his houses, always making these in sections to be easily removable. His *Rhododendrons* became large trees, always kept in tubs, and other shrubs and fruit trees were grown in the same way—that is, always ready for removal, but never removed except as presents to friends.

Mr. Major was true in his attachment to caetaceous and succulent plants, and it would be difficult to find an equal collection in any private garden. These we understand will be sold. There are several curios amongst them, also many seedling *Phyllocactuses*, some of which have flowered, but not all. These and some *Cereuses* were obtained by cross fertilisation effected by his late gardener, Mr. W. Wright, now of Talygarn, and have been well tended by his successor, Mr. Frost. Mr. Major was a gentleman of considerable scientific attainments, and his laboratory testified to his zeal in chemical and electrical experiments, and he was an expert photographer. Essentially a home-loving man, genial and happy, he liked to see all happy around him, family and servants alike, and no family had a more loving parent than he was, and no servants a more considerate and better friend.

Mr. Major, we are not surprised to learn, was as happy in death as in

life, and this has softened the blow to his sorrowing family. He had suffered for some time from heart disease, to which he eventually succumbed in the sixty-seventh year of his age, mourned by all who knew him; and his family, who are like himself in gentleness and innate kindness of disposition, have been cheered by the sympathy of hosts of friends.

PEAR HOUSE AT LAMBTON CASTLE.

THE engraving (fig. 10) shows a house at Lambton Castle gardens that was built for the purpose of Pear growing, as outdoor culture is so unsatisfactory in the district from the noxious vapours from the industries for which the county is noted. The house is a lean-to facing south-east, 324 feet in length, but the engraving only shows about 125 feet, as the photographer could not expose more of it. The house is wired 1 foot

Vines deprives them of the amount of light necessary for their well-being, when they are shifted into a cooler house. Our first fruits are afforded by Blanché Claude, Citron des Carmes, Doyenné d'Été, Dr. Delafosse, and Dr. Jules Guyot; earliness is the principal recommendation. For August, in our cold house, Jargonelle, Beurré Gifford, Clapp's Favourite, and Beurré de l'Assomption are grown. In September we have Williams' Bon Chrétien, Beurré d'Aremberg, Beurré d'Amanlis, Beurré Superfin, and Souvenir du Congrès. October, Louise Bonne of Jersey, Fondante d'Automne, Gratioli, Beurré Hardy, King Edward, Thompson's, and Brown Beurré; November, Doyenné Boussoch, Marie Louise, Maréchal de Cour, Beurré Bosc, Brockworth Park, Grégoire Bourdillon, and Van Mons Leon le Clere. December, Baronne de Mello, Glou Morceau, Pitmaston Duchess, Doyenné du Comice, General Todleben, Durondeau, Duebessé d'Angoulême, Marie Louise d'Uccle, Emile d'Heyst, Prince Consort, Beurré Clairgeau, Beurré Diel,

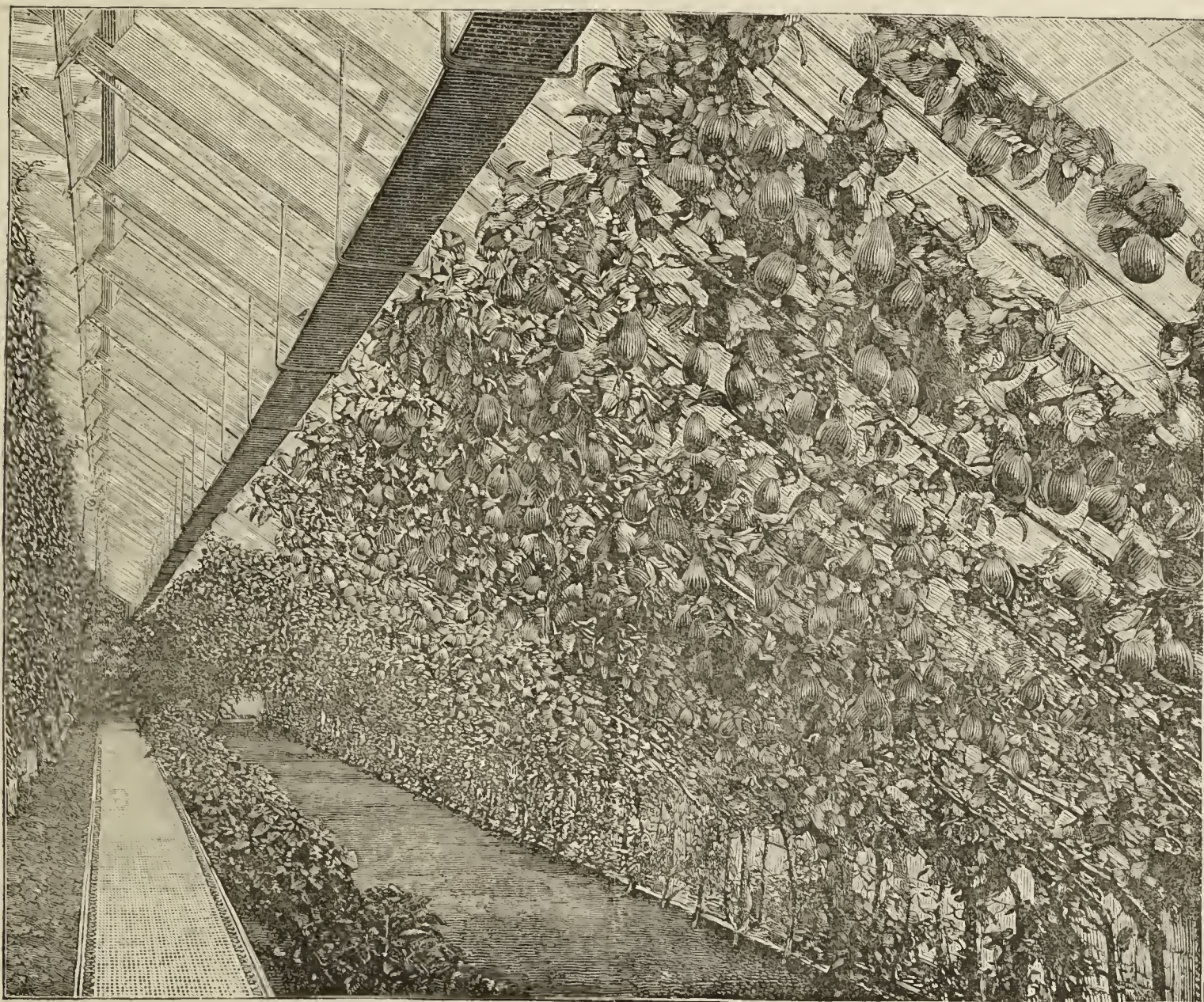


FIG. 10.—PEAR HOUSE AT LAMBTON CASTLE GARDENS.

from the glass, and the Pears planted along the front, with triple and single cordons alternately 15 inches apart, trained similarly to Vines. They are sloped a short distance from the top of the house to favour the Peaches on the back wall, as well as a Strawberry shelf overhead, and the results are most satisfactory. Where I could scarcely before send a respectable dish of Pears to table, since putting up this house I have been able to supply them three times daily, and every dish worthy of special comment.

No fire heat is employed in this house, neither is it necessary for Apple and Pear growing as closing the house in the afternoon is sufficient to get them large enough for all purposes. The bulk of the Pears are from 15 to 30 ozs. in weight, and the flavour is much improved by giving plenty of time and air in ripening. I find all the gritty section of Pears, such as Beurré Diel, greatly improved by a little heat; they do well in a midseason Peach house, and for ten years I have a tree that has never missed its crop.

As I am often referred to for the sorts that do best under glass, I name those under my charge. I am still adding, but would not like doing away with either of them. These last two years we have gathered Pears in June from trees in pots. These are started in February in one of our vineries, and allowed to remain there until the foliage of the

Beurré Bachelier, Beurré d'Anjou, Beurré d'Aremberg, Passe Colmar, and Princess. January, Winter Nelis, Marie Benoist, and Knight's Monarch; February, March, and April, Passe Crasanne, Bergamotte Esperen, Prince Napoleon, Easter Beurré, and Beurré Rance. For cooking purposes I grow Bellissime d'Hiver, Catillae, and Uvedale's St. Germain. These are all planted out, as the engraving represents, although many more are grown in pots.—J. HUNTER.

[Mr. Hunter sent us two very fine specimens of Beurré Bachelier, one of which, weighing upwards of 21 ozs., we have had engraved (fig. 9, page 59). We have on a previous occasion engraved a fruit of Beurré Diel grown by Mr. Hunter, which weighed 36 ozs., and we congratulate him on his great success.]

THE ESCAPE OF MOISTURE FROM SOILS.

THE following record of experiments on "The Percolation of Rain through Comparatively Light and through Comparatively Heavy Soil," by Mr. Edward Mawley, F.R.Met. Soc., F.R.H.S., will be interesting to our readers, many of whom would probably not have anticipated the precise results ascertained. Mr. Mawley says:—"Before considering

the observations themselves it may not be out of place if I preface this modest inquiry with a brief history and description of the percolation gauges with which they were made.

"About ten years ago, when residing at Croydon, I was desirous of testing for horticultural purposes the effect of mulching upon the moisture and temperature of the ground. I consulted my friend Mr. Baldwin Latham, M.Inst.C.E., also a resident in Croydon, and well known as a leading authority on all matters relating to underground water, and he advised me to employ for this purpose percolation gauges similar to those he had then in use in his own garden. Acting upon Mr. Latham's suggestion I had made two open slate cisterns, each 3 feet square and 3 feet deep. These were sunk into the ground to within a few inches of their upper edges, and in the centre of the bottom of each cistern was inserted a pipe which led into a small covered chamber at the side. Over the bottoms of these cisterns I placed a layer of pebbles, and over these some gravel, the two layers taken together being 3 inches deep. The cisterns were then filled up with ordinary garden soil to the depth of 30 inches, or to within 3 inches of the top of them. The stones and gravel were introduced beneath the soil with a view to equalise the drainage over the whole area of each of these percolation gauges, for such they had now become. In the chamber at the side under the ends of the conducting-pipes were placed cans capable of holding several gallons of water apiece, to receive the drainage from the gauges. In the centre of each gauge was inserted one of Symons' earth thermometers, with its bulb at the depth of 1 foot below the surface of the soil.

"I was so much pleased with the working of these gauges that when I removed to Berkhamsted, about six years ago, I brought them with me and had them sunk side by side in my present garden in a line with my rain-gauges and other meteorological instruments. The mulching experiments having been completed, I thought that it would be interesting to employ them here as permanent percolation gauges. One of the gauges was accordingly filled with some of the lightest soil, and the other with some of the heaviest soil obtainable in the neighbourhood. In all other respects, however, the arrangements are precisely the same as those I have described as having been used for the experiments at Croydon. The light soil is composed chiefly of disintegrated clay, vegetable earth, and numerous flints; while the heavy soil is mostly a stiff yellow clay with an equally liberal addition of flints. Both are natural soils and were placed in the gauges as nearly as practicable in the same order they occupied in the spots from which they had been dug. In order to prevent cracks forming in dry weather, the surface of the soil in each gauge is hoed regularly once a week to the depth of about an inch. This also serves to keep down weeds.

"Although the gauges were filled during the autumn of 1885, nearly two and a half years were allowed to elapse before any regular measurements were made, as it was considered advisable to allow the soils sufficient time to settle down and become fairly consolidated. Of course in such confined spaces there is little hope of their ever becoming anything like as firm as in their natural state.

"The total rainfall for the whole period over which these observations extend (April, 1888, to March, 1891) was 73½ inches. Of this amount 47 inches, or about 63·9 per cent., passed through the 2½ feet of comparatively heavy soil, and 43½ inches, or 59·2 per cent., through the same depth of lighter soil; so that the drainage through the more retentive soil exceeded that through the lighter soil by altogether 3½ inches, or 7½ per cent. It therefore follows that the evaporation from the surface of the heavy soil must have fallen short of that from the surface of the light soil by precisely the same amount—viz. 3½ inches.

"During the three summers, commencing with April and ending with September, the totals of the heavy soil drainage amounted to 45 per cent. of the rainfall, whereas that through the light soil was only 36·9 per cent., or 8·1 per cent. less. The total evaporation from the light soil during the same period exceeded the drainage through it by about 10 inches, whereas from the heavier soil it was only 4 inches in excess of the drainage."

Similar data are given in tabulated form for the winter halves of three drainage years beginning in each case with October and ending with the following March. "This is the period when there is least evaporation, and therefore when the drainage is at its maximum. Indeed, it might almost be said that our underground water supply would never be replenished at all were it not for these winter rains; for in Nature it is seldom that the rain which falls during the rest of the year has any chance of finding its way permanently into the ground. The difference between the quantities passing through the two soils during this period, owing to the small amounts evaporated from their surfaces, will be seen to have been but slight. In fact the drainage through the heavier soil was 85·4 per cent., and that through the lighter soil 84·6 per cent. of the aggregate rainfall, or a difference in favour of the heavier soil of barely 1 per cent. The differences between the quantities evaporated consequently also come out small."—(From the "Transactions of the Hertfordshire Natural History Society," December, 1891.)

RHODANTHES.

THESE graceful annuals are very useful for decorative purposes, and last a long time in good condition. Five-inch pots well filled with healthy plants, when crowned with their pink and white flowers, always command admiration. I took a great liking to them a few years ago on seeing them exposed for sale in Covent Garden Market. I was, however, not very successful in my early

attempts to produce plants equally good, but after a considerable amount of attention and some failures I succeeded at last. I found out eventually that the two greatest mistakes made in my first attempt were to thin the seedlings too severely, and to give too much water in the early stages of growth.

The present is a capital time to make a sowing to produce flowering plants in the early summer months. I find 5-inch pots are the size in which the plants are most useful, and as these Rhodanthes require but little root room, and make very slender top growth, the seed should be sown thickly enough to produce plants half an inch apart over the whole surface of the soil. When the seedlings are about an inch high there seems a great temptation to thin them to a greater distance apart; but if this be done the mistake will soon be discovered, as the flower stems get thin and tapering as they extend in length. A compost consisting of two parts loam, one of old hotbed manure, and one of leaf soil with a little sharp sand added suits them admirably. The seeds should be just covered with fine soil, which, when slightly pressed down, ought to be about half an inch from the rim of the pot. After watering the soil through a fine rose, the pots should be placed in a gentle heat, and as soon as the seed has germinated ought to be placed on a shelf near the glass to ensure a sturdy growth from the beginning, as ultimate success depends in a great measure upon this practice.

The seedlings should be watered through a rose when they require it till they are 2 inches in height; after that stage is reached the use of the rose may be discontinued, but the soil must be kept rather dry till the plants are about 6 inches in height. By that time it will be found root action has become pretty active, and larger supplies of water needed. Weak liquid manure should also be given from this stage onward till the flower buds are beginning to open, when it should be discontinued. Occasional applications of clarified soot water are also very beneficial in giving the foliage that deep green hue which is so attractive in plants of this description. A shelf in an ordinary greenhouse or cool vinery, where they are not on a level with the ventilators, is a suitable one for the plants at this season of the year; but later sowings will succeed admirably in cold pits.

The only support the plants require is to place four small sticks round the edge of each pot with a twisted piece of raffia grass carried from one to the other, from 4 to 6 inches above the rim of the pot. This effectually supports the slender stems, and yet allows the plants to grow in a natural manner. When in flower these beautiful annuals are suitable alike for placing singly in vases, arranging among other plants to form groups, or for using in a cut state. *R. maculata* and *maculata alba* are the varieties I have previously grown; but I see by the catalogues there are double red and double white forms. These I intend to try this season.—H. D. W.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

(Continued from page 41.)

HAVING already discussed the cause of the Potato disease, it now remains to combat the enemy. This can only be effected by precautionary measures, for such only are the so-called remedies, inasmuch as once the fungus has gained access to the internal tissues nothing can possibly do more than prevent the spread of the disease, no remedy wholly destroying the parasite without killing the host.

Dr. Lang suggested, in 1858, the moulding-up of the Potato plants as a protection against the conidia being washed down to the tubers. This was not followed to any great extent until it was strongly advocated by Mr. Jensen of Copenhagen, and supported by Professor Plowright. Mr. Jensen's system has the advantage of being possible only where the soil has been thoroughly worked and made friable. Then the rows should be 30 inches apart, the plants thus having sun and air assured to them, inducing a sturdy plant, solidified growths, and disease resistant. The first earthing is done in the ordinary way, except that it is to be flat on the top instead of, as in the ordinary way, furrowed hollow up the centre. The rounding is to give rain a chance to wash the oospheres or conidia into the furrow spaces between the rows, where they are powerless for mischief, except by contact with the roots, which at the first moulding and for some time afterwards are practically nil, and where they can only germinate to perish. It is not the oosphere or conidia liberated (zoospores) that can live without germination in the presence of warmth, atmospheric air, and moisture, but the warted "fruit," and that cannot hold the oospheres, prevent their escaping unless buried, and then it may live four years without losing its germinating power. The protective moulding is to be done as soon as diseased spots appear on the

leaves of the Potatoes, never later than the beginning of the harvest. This can be done with a hoe in allotments, or with a plough in fields, and should cover the tubers on both sides of the row not less than 4 inches thick with fine mould. Now the previous moulding having been round or flat on the top, next to no hollow is formed, as in ordinary moulding, or if there is the top must be rounded. That is not mentioned in the "instructions," but we consider it necessary that the conidia be given no place about the stems, but as in the first moulding give them a chance of being washed into the furrows, and there spending their forces on "desert air." At the same time as the "protective moulding" the tops are to be bent over to one side of the row, there to scatter the conidia, not over the tubers, but on the moisture of the furrows, and when the tops begin to wither, most of the leaves having fallen, they are to be cut off, removed, and burnt. In the course of a few days the tubers may be lifted, and Mr. Jensen recommends disinfecting them—at least the seed tubers—by placing them for four or five hours in a dry-air chamber at a temperature of from 100° to 105°. This system is based on the principle that the conidia and the zoospores are washed by rain from the leaves to the soil, and through the soil on to the tubers. The plan is in some respects much older than the Potato disease, for double earthing was practised in the warp lands of Lincolnshire and Yorkshire before its general prevalence in 1845. The first earthing was small, the cultivator striving to help the crop by giving the plants a little warm sweet soil whilst getting the sun into the ground for forwarding the crop later on; and the second earthing-up was to prevent the drought getting into the earth and save the tubers from greening. More, to secure fine, more saleable tubers, fewer "chats," the tops were drawn over into the furrows, and this let the sun into the tops, and these, in more light, and the tubers having more heat, had more starch within them—flour balls little less nutritious than wheaten loaves. Then the tubers were sweated—placed in "pies" (several hundred yards in length in many cases)—and the superfluous moisture expelled, a drain-pipe being inserted at the apex at every 4 to 6 feet distance, or a "straw chimney" placed through the covering of straw, and a little earth to prevent its displacement, let off the steam. The system answered well before the disease was generally known—it has answered well since wherever it has been adopted.

The offering by Earl Cathcart, through the Royal Agricultural Society, of £100 for an essay on the Potato disease, resulted in an expression of opinion that the Potato plant was weakened by continuous propagating from the tubers, therefore liable to fall an easy prey to the fungus, more so than varieties raised from seed, and it was recommended to raise varieties by that means such as would resist disease. That, no doubt, resulted from the well known fact that some varieties were hardier and more disease-resisting than others. The outcome was the withholding of the £100, no award being made; but, if the essayists received no satisfaction from the Royal Agricultural Society they have had the consolation of not labouring in vain, for cultivators and consumers have profited by the introduction of new and disease-resisting varieties of Potatoes; to wit, Magnum Bonum and Scotch Champion, with others better in some respects than the older varieties.

Then, attempts have been made to supplant the varieties of *Solanum tuberosum* by other tuber-producing species of *Solanum*. The efforts have not been successful so far, though some have been found, as *S. Commersoni*, resisting or uninjured by *Phytophthora infestans*, that species and *S. Maglia* proving most promising, yet they are a long way from becoming substitutes for the Potato, and when they are improved by cultivation, who knows whether they will be disease-proof? No variety is under all circumstances and in all conditions disease-proof, therefore it is a question of combating the diseases, and those enemies to which cultivated plants are subject, if we mean to have the continued use of their products.

PREVENTION.—Sulphate of copper, or blue vitriol, has long been used on the Continent, first, I believe in France, as an annihilator of fungoid parasites on Vines, and in recent years has been experimented with there and in America for the prevention of diseases of fungoid origin, and the results have been such as to leave no doubt that the copper cure, as it is called, is efficacious, and with due care perfectly safe. The sulphate of copper dissolves in four parts of cold water and two of hot water. It is insoluble in alcohol, but readily dissolves in ammonia. Indeed copper salts are characterised by their tendency to form compounds with ammonia, an excess of ammonia added to a solution of copper sulphate resulting in a deep blue solution of ammonio-cupric sulphate. Ammoniacal solutions of copper are not, however, about to be alluded to, and they are only mentioned for avoidance in treating the Potato, for ammonia is as bad for blackening Potato tops—though it will not cause the tubers to rot—as the

Potato fungus, and the sulphate of copper has a very offensive styptic taste, and is extremely poisonous. That must be kept in mind in treating the Potato disease, and raises a very important question. Is copper sulphate safe to use against the Potato disease? Dr. Haselhoff, the German scientist, has pointed to copper salts being a possible source of danger, and shown that the dry substance of plants grown in soil impregnated with copper sulphate to decrease in proportion to the quantity of that salt present. Against that we have to place the facts that in France, where it has been used longest, and in America, where it is generally used for preventing attacks of parasitic fungi, no injurious effects have been experienced by cultivators, but on the contrary good benefit has resulted, as the British grower knows to his cost by the much finer and cleaner fruit American growers send to British markets, and no evil consequences have followed the consumption of produce, the plants producing it having been kept free from parasites by the judicious employment of copper sulphate.

THE MIXTURE.—Copper sulphate in simple solution with water is so styptic (and that means antiseptic) that it is not safe to use on tender foliage at a strength of 1 lb. to 25 gallons of water. At that strength it may destroy oospheres, but the evidence points to treatment of the "fruit" as not benefited, that is, from the cultivator's point of view—namely, destroyed. Nothing less than a 1 per cent. solution, 1 lb. of sulphate of copper to 10 gallons of water, having that effect on the "outer coat" as to kill the oosphere within it. No plant will stand the solution at that strength unless ligneous and quite dormant, therefore treatment before growth for the destruction of "rests" is totally inapplicable to the Potato. Nor does iron sulphate afford any shelving of the disease, for to destroy Potato disease "rests" a 50 per cent. solution at least is necessary, and no plant like the Potato will stand that, whilst a 6 per cent. solution of iron sulphate has proved innocuous against the phytophthora, therefore we may dismiss iron sulphate or green vitriol as ineffective, no use, in fact, in regard to the fungus, however well it may serve the Potato plant internally in resisting its enemy from without or in repelling invasions. Thus we have to fall back on copper sulphate, and that is no use in simple solution, consequently we must take off its styptic properties, make it oxidise slowly and in such manner as not to injure the Potato, yet powerful enough to destroy the oospheres, conidia, or zoospores of the fungus. A 6 per cent. solution when hydrated with lime is too much for the Potato tissues, blackening them, and a wrongly compounded 2½ per cent. Bordeaux mixture is quite as disastrous as the fungus, whilst a stale mixture is neither good for the Potato foliage nor the soil (if the German scientists are right), or harmful to the fungus. If stale air-slaked lime is used the copper sulphate is as styptic and hurtful as the simple solution, killing or seriously damaging the Potato plant and decreasing the yield of Potatoes. When the mixture is prepared beforehand it has no effect on the fungus, but it may injure the plant, though that is uncertain, and is no use whatever, worse than useless, material wasted, labour lost.

PROPER FORMULA OF BORDEAUX MIXTURE FOR THE POTATO DISEASE.—Sulphate of copper, powdered, 2½ lbs.; quicklime, light lumps fresh from the kiln, 2½ lbs.; water, 10 gallons. Place the powdered copper crystals in a tub, pour in 3 gallons of water, stirring until the water is blue. Pour the blue solution into an empty tub, and 3 gallons of water into the tub containing the copper, stirring the latter as before. This will dissolve all the copper sulphate, when pour this also into the other tub. Place the lime in the empty tub, slake with water, and add enough water to make a thin whitewash. Pour the whitewash into the copper solution through a coarse sack stretched over the top of the tub. This removes all small pieces of lime and dirt. After pouring in all the whitewash, add the remainder of the water—10 gallons in all being used—and thoroughly stirred, the mixture is ready for use.—G. ABBEY.

(To be continued.)



A SHEFFIELD DINNER.

WHEN a Journal representative received instructions to go and attend a dinner a few days ago he bowed to the call of duty as readily as Mr. Archibald Forbes, when that brilliant war correspondent was instructed by a laconic telegram to "Go and do the Zulu war." But "the way was long, the night was cold," and perhaps he had difficulty in repressing a shiver or two at the prospect of a journey of 160 miles to eat his dinner in the grey gloom of a frosty January day. By-and-

by, however, there came back to him recollections of a former visit to the town of steel and iron, and as the memory of the welcome he received from everybody whom he met, friends or strangers, gathered force, he began to feel a comfortable glow stealing over him, and to feel glad after all that the Fates had allotted him so grateful a task as that of breaking bread with the hearty Yorkshiremen once more. It was cold, though, without a doubt. The "nipping and the eager air" got a little more nipping and a little more eager every mile farther north. The snowflakes, scanty around the metropolis, thickened and deepened as the Midlands were reached till the landscape assumed quite an arctic aspect. He thanked his stars that he had followed the advice of an experienced friend and entrusted his precious personality to the fostering care of the Midland Company. The combination of speed and comfort was never more appreciated by any traveller than by him on that occasion.

When your representative visited Sheffield on a previous occasion he characterised it as a city of contrasts, but with sufficient honesty to show you its worst side at first. It does not put its choicest samples at the top of the barrel, and hide the inferior ones down below, where, when you find them, you feel doubly disappointed from the promising upper layer having led you to expect something better. On the contrary, you find the surface a little rough, and not of the brightest colour; but the deeper down you go the better the samples are, and when you have got as deep as time and circumstances will permit, it is odds that if you are of those who appreciate solid worth and plain, honest good quality better than a showy exterior, you will be more than satisfied. The Journal representative has entered the town from both stations, and for dark, dismal, depressing dullness he thinks there is little to choose between them. He advises all who visit the town for the first time, and whose impressions of beauty are not met by glowing furnaces and thick smoke clouds, to withhold their judgment, and not condemn the place beyond all redemption, but to go cheerfully ahead, and he thinks that both in external features and in the character of the inhabitants there will be found abundant compensation for the cheerless introduction.

And what of the Sheffield gardeners? The imagination conjures up doleful visions of their trials and difficulties in such an atmosphere. One would think that, with an air so laden with grimy deposits and so charged with sulphurous fumes, plant culture was almost an impossibility. Do not make such a mistake for a moment. It is true that there are heavy drawbacks, and that there are difficulties to encounter, such as those who practise in pure country air have no conception of; but skilful and earnest men know how to triumph over various troubles, and the gardeners in and around Sheffield not only understand their profession well, but are of the right mould for fighting against disadvantages instead of being discouraged by them. Perhaps the Roses baffle them, in some parts of the town at all events; and it will be admitted that Rose growing must be difficult indeed in gardens where atmospherical impurities coat objects almost in a few minutes; but there are Roses grown at Sheffield, and good ones too, while as to Chrysanthemums, they are thoroughly at home. The autumn show there is one of the leading provincial exhibitions, and the home productions are invariably of a high order.

Visitors to Sheffield who are unfamiliar with the town must be cautious in their attempts to investigate it unguided. It is a labyrinth of narrow streets, following no given plan, but fitted to the unusual configuration of the ground; hence any attempt to grasp the "run" of it is futile, and if followed up usually results in vague and fruitless wanderings. Your representative arrived in the town by an earlier train than he had indicated, and hence found no familiar face to greet him, and in his sublime ignorance he started forth to meet those who, from no fault of their own, had not met him. It was a vain attempt, so he wandered around the town of Sheffield, making strange detours into mysterious by-ways, and regularly finding himself at the point from which he started, or bold sallies into fresh turnings, which all led him into others that he had made a detailed inspection of a few minutes previously. A little of this kind of thing goes a long way, and he was not sorry when at length by submitting every person whom he met to a course of close and persistent cross-examination, he hit upon a familiar quarter, and got upon the track of that smart Journal correspondent and rising Sheffield gardener, Mr. E. D. Smith, in whose safe keeping he remained until able to stretch his legs beneath the broad and well-laden mahogany at the Wharnccliffe Hotel.

It was soon clear to him that the annual dinner of the Sheffield, Hallamshire, and West Riding United Chrysanthemum Society was going to be a great success. The arrivals rapidly mounted up until nearly a hundred were assembled, and proceedings were commenced under the able and hearty chairmanship of one of the Society's Vice-Presidents and best supporters, Mr. C. E. Jeffcock. Amongst his supporters were recognised Mr. J. Haigh, a very old supporter of all pertaining to gardening in Sheffield; Mr. J. Pidsley, Mr. Seagrave, Mr. Broughton, Mr. G. J. Stimson, Mr. E. D. Smith, above referred to, and who is Secretary to the Walkley Amateur Horticultural Society; Mr. J. Harrison, one of the leading amateurs in the district; Mr. W. H. Hinebelle, Mr. W. Redmill, who distinguished himself with a remarkably fine group at the November Show; Mr. C. Scott, Mr. R. H. Laughton, a prominent member of the Walkley Society; Mr. W. Marshall, Mr. J. G. Newsham, Mr. Slaney, Mr. T. Mullinson, Mr. C. H. B. Firth, Mr. C. Ellison, Mr. Eyre, Mr. B. Simpson, and Mr. W. Houseley, the able and energetic Secretary. Mr. H. Broomhead, an influential supporter of the Society, was unfortunately unable to be

present, and the same remark applies to Mr. W. K. Woodcock. The usual loyal and patriotic toasts having been honoured in a fitting manner, Mr. Newsham proposed, "The Town and Trade of Sheffield," expressing satisfaction with the prospects of the local trade. As the prosperity of horticulture is linked in so closely with that of commercial operations, it may be hoped that the trade of Sheffield will continue to grow.

As was said during the evening, the Society had held a strong position since the amalgamation of the two bodies a year or two ago. Their resources were enriched by an admirable library of practical horticultural works, the gift of Mr. Broomhead, and to which all members had access. In all parts of the country public libraries were springing up, showing the widespread desire for sound literature, and it was suggested that other horticultural societies would act wisely by noting the direction in which the tide was flowing, and endeavour to make some provision of a similar character. The monthly meetings of the Society were also a source of strength and interest. Not only did they afford a means of social intercourse and provide opportunities for discussions on cultural matters, but they were small exhibitions, plants and produce being shown, and prizes given on each occasion. As the financial success of the Society depended largely on the support of its patrons, members were asked not to leave the whole of the work connected with it to the Secretary, but to assist in it themselves, amateurs by introducing it to the notice of their friends, gardeners by endeavouring to enlist the sympathy and support of their employers. So far as the general position of the Society was concerned, it was in the highest degree satisfactory. There was a good balance in hand, and although it was a little smaller than that of the previous season, the difference was accounted for by the purchase of a case for the library, the advantages of which would in all probability soon compensate for the outlay by leading to increased membership.

Mr. J. Haigh said they had been considering the question of a summer show. So far as Roses were concerned, an exhibition of these flowers would have to consist mainly of outside classes, as Rose growing was so difficult in Sheffield that the number of home growers was very limited, still he thought that a show of general plants could be held. He thought that, considering the difficulties with which they had to contend, Sheffield Chrysanthemum growers produced admirable results, and the success they had achieved, which would compare favourably with that of other towns, proved that the Chrysanthemum was a splendid town flower. He proceeded to express his pleasure at the presence of a representative of the *Journal of Horticulture*, which, he said, horticulturists in Sheffield and the district looked upon as their chief supporter and friend, but on the remainder of his remarks on this head your representative modestly draws a veil. Suffice it to say that Mr. Haigh made a hearty and genial speech, and was warmly cheered.

During the evening a selection of vocal and instrumental music was given, and in due course a most enjoyable gathering came to an end.

LEICESTERSHIRE AND MIDLAND CHRYSANTHEMUM SOCIETY.

THE fifth annual meeting was held at the Victoria Coffee House, Granby Street, Leicester, on Wednesday evening, the 20th inst. The President of the Society (Ald. T. Wright, Mayor of Leicester) presided, and there was a large attendance of members. The Mayor, in briefly opening the proceedings, said he was very glad to be present at that their annual meeting; he took it that they would have a little of history and a little of hope—something of what they had done, and something of what they expected to do in the future. The fact that there was so large a gathering that evening betokened interest in the affairs of the Society, which meant also personal interest in the cultivation of one of the most interesting and beautiful plants they had in England.

The Secretary (Mr. W. Bell, F.R.H.S.) read the annual report—a most satisfactory one, showing a considerable increase from last year, both in the number of members and in the amount of subscriptions received. Especial mention was made of the generosity of Thos. Brooks, Esq., J.P., of Barkley Hall, who, in addition to his annual subscription, gave £5, to be competed for by working men. The income for the year had considerably exceeded the expenditure, and after paying off some heavy debts left over from the previous year a balance of £3 1s. 7½d. was carried forward.

The Mayor contributed an excellent congratulatory speech after the reading of the report and balance-sheet. He also advocated offering increased and extended prizes for fruit with the object of improving and extending its culture in the county. He himself would be glad to subscribe an additional 3 guineas for this purpose, and he believed he could promise them a like amount from another friend of the cause.

Mr. Harrison, of the well-known firm of Harrison & Sons, Seedsman, Leicester, made an excellent speech, congratulating the Society upon its financial condition and general prosperity, and the able manner in which it was being managed by a number of practical gardeners and amateurs. He would be very glad to double his subscription in future.

A scheme for monthly meetings with essays or lectures upon fruit culture or kindred subjects met with much approval. Letters from the Rev. J. Bird, Walton-on-the-Wolds, and Mr. W. K. Woodcock, F.R.H.S., promising assistance in this matter, were read, and gave satisfaction. The scheme was referred to the Committee to arrange.

The whole of the officers and Committee were re-elected, and a most agreeable and satisfactory meeting terminated with a vote of thanks to the Mayor for presiding.

MRS. ROBINSON KING CHRYSANTHEMUM.

DOES Mr. Jones mean to say that it is a fact that Mr. Hotham is neither the raiser nor yet the holder of a tenth part of the true stock of this variety? If such is the case how is it that the holders of the other nine parts have been so unfair as to name their stock the same as Mr. Hotham's? Why have they not named theirs something else? Honestly speaking, if half is true what they themselves have asserted, they have not even the slightest right to the name of Mrs. Robinson King.

Mr. Jones says he desires to "give honour where honour is due;" so do I, and it has been abundantly proved that to Mr. W. H. Hotham and to no one else are we indebted for this new and grand variety. Can Mr. Jones give us a single instance of anyone (other than the person I named in my last letter) who has ever grown and exhibited, up to the present time, a single bloom of the true Mrs. R. King? He dare not risk 5s., much less £5, that he can prove this. I have no doubt that it will be well and extensively grown and exhibited in hundreds of places next November; therefore, as he truly says, it is imperative "that the public should know the correct facts," and in my previous letter I have stated nothing but facts.

I therefore trust that Mr. Jones will tell us where the other "nine parts" of the true stock have originated, also what guarantee he can give us that they are what he states—viz., "As reliable and equal to those from Mr. Hotham." Unless he can and will do this, confusion and annoyance will only result from carrying this controversy any further.—CHAS. LAWTON, *Welton Gardens, East Yorkshire.*

AFTER reading the notes on the above variety I have come to the conclusion that whoever offers it for sale should be able to guarantee their stock as the true variety. This is what concerns purchasers most, though doubtless it would be interesting to many to know where it originated, and who holds the greater part of the stock as mentioned in last week's Journal by Mr. Jones.

I saw the variety exhibited at the Hull Exhibition of 1890, and noted it at once as good. Mr. Hotham's stand of blooms being generally good, I, in company with a friend, paid Mr. Hotham a visit, and before leaving him I was in possession of a few cuttings. Previous to this visit I had had other cuttings given me as being the same variety, but I saw the plant they were taken from, which, in my opinion, resembled Golden Queen of England. After receiving Mr. Hotham's cuttings, the plant from which they were taken being in bloom, I at once, not to confuse the two varieties, threw the first named cuttings away. I am writing in the interest of Chrysanthemum growers, all the persons whose names have been mentioned in the Journal being unknown to me. The plants and what cuttings they have produced are in my possession.—SAMUEL BACKHOUSE, *Onslow Gardens, Shrewsbury.*

OUTLINE OF THE HISTORY OF COMMERCIAL FERTILISERS.

(Concluded from page 29.)

OXYGEN.

30, OCCURRENCE OF OXYGEN IN NATURE.—Oxygen is the most abundant of all the elements. The compounds which contain no oxygen are few in number. Oxygen forms nearly one-half of the crust of the earth; eight-ninths of water; about one-fifth of air, and one-third of all animal and vegetable matter.

Oxygen occurs in the air uncombined with other elements. Oxygen, combined with the elements carbon and hydrogen, or with carbon, hydrogen, and nitrogen, is found in substances which go to make up animals and vegetables.

31, DESCRIPTION OF OXYGEN.—As might be inferred from knowing that oxygen in the uncombined state forms part of the air, oxygen has no colour, taste, or smell.

Oxygen is a very active substance from a chemical point of view. It tends to unite with nearly all of the other elements. In all forms of burning the oxygen of the air is simply uniting with other elements. Thus, in a coal fire the oxygen unites with the carbon of the coal. The heat is produced by the union of the two.

THE RELATIONS OF HYDROGEN AND OXYGEN TO FERTILISERS.

32, As already stated, water is formed by the union of two gases, hydrogen and oxygen. These elements are supplied to plants in the form of water. Growing plants contain a larger amount of water than of any other constituent. The oxygen and hydrogen of the water are separated in the plant, and in this way plants secure the hydrogen and oxygen which they need to build up their tissues. In this manner water acts as a direct fertiliser. The water is supplied by rains to the soil; from the soil it is taken into the plant through the roots. In regions adapted to agriculture, plants receive all the hydrogen and oxygen needed, and usually much more, from the rains; therefore these elements are not considered important parts of fertilisers, except, perhaps, that it is desirable to have in a commercial fertiliser as little water as possible.

When water is supplied to plants by irrigation, it can very properly be called a fertiliser, and an extremely important one too.

33, In addition to its action as a direct fertiliser, water has an important part to play as an indirect fertiliser. Thus, it dissolves the soluble food materials of the soil, the mineral matter and most of the nitrogen, and carries them into the plant. In addition to its action as an indirect fertiliser, water acts as a carrier within the plant in trans-

ferring from one part of the plant to another, as needed, the various products contained in the plant, just as the blood in the animal body carries to every part the nutriment adapted to each organ and part.

NITROGEN.

34, OCCURRENCE OF NITROGEN.—Nitrogen occurs in nature in the following forms:—

- (1), As a constituent of air.
- (2), In the form of ammonia.
- (3), In the form of nitric acid and nitrates.
- (4), In various other forms in plants and animals.

35, NITROGEN IN AIR.—Nitrogen, uncombined with other elements, forms about four-fifths of the air. Since the nitrogen in the air is not combined, we can conceive its properties for ourselves, and our observations show us that it is a gas which has neither colour, taste, nor smell.

36, NITROGEN IN AMMONIA.—Nitrogen combined with the element hydrogen forms ammonia. Ammonia is present in the air in very small quantities. Ammonia is formed when vegetable and animal substances containing nitrogen decompose.

Ammonia is a colourless gas, and it is this gas dissolved in water which is familiar to us as ammonia water, or "spirits of hartshorn," and which causes the peculiar odour of "hartshorn."

Ammonia unites with different acids and forms salts, much as acids do; these salts we call ammonium salts, compounds which do not generally have any odour like ammonia. Thus, ammonia combined with sulphuric acid forms ammonium sulphate, called by some sulphate of ammonia. Ammonia combined with hydrochloric acid forms ammonium chloride, sometimes called muriate of ammonia, also known as sal-ammoniac.

37, NITROGEN IN NITRATES.—Nitrogen, combined with hydrogen and oxygen, forms nitric acid or aqua fortis. If in nitric acid a metal, as sodium, for example, takes the place of hydrogen, we have a sodium salt of nitric acid, or a nitrate, formed, called sodium nitrate.

When animal or vegetable substances decompose in rather warm, moist places, the nitrogen is changed into nitrates. This change of the nitrogen of organic matter into nitrates is caused by bacteria, which are very small living vegetable organisms, and which exist everywhere in enormous numbers. The process is known as "nitrification."

38, NITROGEN IN ANIMALS AND PLANTS, OR ORGANIC NITROGEN.—Nitrogen, combined with the elements hydrogen, carbon, and oxygen, occurs in plants and in animals. Such substances, for example, are the casein or curd of milk, the gluten or gummy portion of wheat, the fibrin of blood, the white of egg, &c. When such compounds decompose, the nitrogen is first changed into ammonia, and then, under proper conditions, into nitric acid or nitrates. The nitrogen existing in animals and plants is generally spoken of as organic nitrogen.—(*Bulletin of the New York Agricultural Experiment Station.*)

(To be continued.)



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—Nothing is gained, but often the crop is lost by hurrying the trees in the early stages of growth; therefore, seek to maintain steady progressive development and sturdy growth by making the most of sun heat with early and judicious ventilation. Disbudding also must be done cautiously, more especially with early forced trees, as too early and "all-at-once" removal of the surplus growth gives a check which may cause the fruit to fall, and the reaction that follows has its outcome in strong shoots. Commence, therefore, by taking a few foreright shoots first, then proceed in a similar manner with those on the upper side of the shoots, and those on the weakest parts or lower side of the shoots last. Leave a shoot at the base of the present bearing shoot to supply its place next season, and another must be left on a level with or above the fruit to draw the sap to the fruit. The upper shoot should have its point pinched off at the third leaf unless it is necessary for the extension of the tree, when it should be trained in its full length. In the case of trees extending the shoots necessary for the formation of the trees must be trained 12 to 15 inches apart. Instead of disbudding last year's extensions the shoots not required for laying in to form the bearing wood of next year may be pinched at the third leaf to form spurs, stopping subsequent growths at the first leaf. The bearing shoots on extensions should be 12 to 15 inches apart, and the extensions or branches a similar distance asunder, for it is of primary importance in producing fine Peaches and Nectarines that the growths be sturdy, and that is only the case when the shoots are trained so far apart as to admit of the foliage being fully exposed to light and air; therefore, allow no more shoots to be produced than is necessary for the filling of vacant space or to furnish to bearing wood of next year.

When the fruits are set and swelling give an occasional syringing in the early part of fine afternoons. It will assist the fruits to cast off the remains of the flowers; but heavy syringings have a tendency to induce

soft growths, and the evaporative power of the leaves is as yet small, soon becoming injured by excessive moisture. Sufficient moisture can be secured by damping the paths and borders on dull days, and the foliage is then free to elaborate the sap. When the fruits swell, and are the size of horse beans and too thickly placed, remove a few of the smallest and those on the under side of the branches; but do not thin too severely, as excessive thinning often gives a check inimical to the fruit left, therefore thin the fruits by degrees, removing a few at a time, commencing with the weakest parts of the tree. If aphides appear fumigate carefully and moderately on two or three consecutive evenings, having the foliage dry, and delivering the smoke cool, or syringe with a mixture of quassia water and softsoap, placing 2 ozs. of quassia chips in a gallon of cold water; let this stand a night and then boil ten minutes, dissolving in it, as it cools, 2 ozs. of softsoap, straining through muslin before use. This may be used with a brush to parts infested with brown aphides, and is best applied in a spray, one gallon going as far as six gallons by ordinary syringing, and is just as efficacious against the insects and less dangerous to the trees. The following mixture is thoroughly effectual against aphides, red spider, and thrips:—Hot water one gallon, dissolve in it 2 ozs. of softsoap, and add one pint of tobacco juice; strain, and spray or syringe the trees with it in the evening, syringing with clear water the following day. If mildew appear dust the infested parts with flowers of sulphur, but if syringing is properly attended to there will not be any mildew, the house being judiciously ventilated. Be careful in giving air in cold weather, as cold draughts may cause the fruits to fall, and in clear frosty weather it is safer to allow the temperature to rise a little higher than to open the ventilators too much. In watering inside borders liquid manure will assist weakly trees to swell their fruit in the first stage, and always apply it equal in temperature to that of the mean of the house.

Trees Started Early in the Year.—The buds having swelled and none showing colour syringing must cease over the trees, but sprinkle the borders occasionally—morning and afternoon on fine days—so as to maintain a genial condition of the atmosphere. Examine the inside border, and if necessary supply water so as to thoroughly moisten the soil down to the drainage. If there is a superabundance of flowers remove that on the under side or back of the trellis, drawing the hand contrariwise of the growth along the shoots. The temperature may be advanced to 45° to 50°, and 50° to 55° in the daytime by artificial means, and 60° to 65° from sun heat, ventilating freely above 55°, and leave a little constantly at the top of the house.

Trees to Ripen Fruit Early in July.—The house must be closed now, and the trees started at the commencement of February. Syringe the trees two or three times a day in bright weather, once a day sufficing when dull, and in severe weather merely damp the path and border. Turn the heat on in the morning so as to raise the temperature to 50°, keeping it at that figure until the decline of the sun, then allow the temperature to fall to its night minimum, employing fire heat only to prevent its falling below 40°. Water the inside border if necessary, that the lights having been removed no water will be required for months to come; yet there is a great difference in border requirements, those formed of retentive material not needing water nearly as often as those composed of loose porous soil.

Later Houses.—The buds in these are swelling fast where the lights are fixed, but where the lights are off the buds are quite dormant; and whilst the former have lost many blossom buds, the latter retain all the buds. Ventilate freely in bright weather so as to retard the buds as much as possible, not omitting to water inside borders if they show the least indication of dryness. Houses from which the lights have been removed should not have them replaced until the time arrives for starting the trees or the buds are so advanced as not to be safely longer exposed.

VINES.—*Earliest Forced Vines in Pots.*—These will now require copious supplies of liquid manure, always tepid, and never too strong. Thin the berries somewhat freely to induce fine berries, but not going to the extreme of making the bunches loose, though that is better than wedged bunches, yet the compact even berried cluster is most tempting. Maintain the night temperature at 60°, falling 5° on cold nights, 65° to 70° on cold days, 70° to 75° when mild, ventilating a little at 70°, increasing it with sun heat to 80° or 85°, at which keep the house through the day from that source, closing at 80°, and so as to run up to 85° or 90°, damping all available surfaces. Damping is also necessary in the early part of the day.

Earliest Forced Planted-out Vines.—Attention must be given to tying the shoots and stopping them to one or two joints above the show of fruit where space is limited, the axillary growths or laterals below the bunch being removed, except those on the two lowest joints, which, with those above the fruit, should be stopped at the first leaf and subsequently as made. The stopping is very important for allowing more growth to be made than there is room for, and not considering that a little lateral extension is desirable, causes overcrowding, and that is fatal to good results. The cultivator must be guided by circumstances, and manipulate so that the principal foliage be fully exposed to light. Very close stopping is not desirable where there is room for extension, the increased foliage promoting corresponding root-action and the elaborating power is enlarged, therefore make provision for an increase of growth and retain all the foliage consistent with its full exposure to air and light. Maintain a temperature of 65° at night, and 5° more for Muscats where the Grapes are in flower. Sweetwater and others that do not set freely should be brushed over with a large camel's-hair brush or

bunch of feathers. This is essential with Muscats, assisting fertilisation by shaking the rods daily or dusting the bunches after brushing them with pollen taken from varieties that afford it freely, and this applied to the stigmas usually results in a good set, especially if accompanied by a constant circulation of rather dry warm air. Commence thinning when the berries are about the size of small peas, it then being seen which berries are fertilised by their taking the lead in swelling. Ventilate carefully, a little at a time, so as not to reduce the temperature, only to prevent its rising too suddenly and too high. Maintain a genial condition of the atmosphere after the Grapes are set by damping available surfaces in the morning and at closing time. Water inside borders with tepid liquid manure not less in temperature than the house.

Vines Started at the New Year.—These are moving, breaking strongly. Continue syringing the Vines twice a day until the bunches are formed, then discontinue it; maintain the atmosphere in a genial condition by damping instead two or three times a day. Avoid syringing hot-water pipes when highly heated, the steam being different from that given out by cooler surfaces, and is a common cause of rust. The temperature should be increased to 55° at night, and 60° to 65° by day, with an advance of 75° from sun heat, ventilating carefully, early, and in accordance with external influences.

Houses to Afford Ripe Grapes in July.—The Vines must be started early in next month. There is no need to cover the outside borders with fermenting materials, but they should be covered with leaves or litter to prevent frost or snow chilling the roots. Syringe the Vines two or three times a day, maintaining a temperature of 50° at night, and 65° by day from sun heat. Supply the inside borders with water, or liquid manure in the case of weakly Vines, at a temperature of 75°, repeating if necessary, so as to bring the whole border into a thoroughly moist condition.

Late Houses.—Gros Colman, Gros Guillaume, Mrs. Pinco, Trebbiano, and other Grapes requiring a long time to grow and perfect their crops should be started during next month, therefore have the house put in order, and everything essential in respect of cleanliness to the Vines doing well effected without delay.

Eyes and Cut-backs.—Eyes may now be inserted in pots, pans, or square pieces of turf, taking the eyes from well-ripened wood, filling the pots or pans with light loam, inserting the buds with a pinch of silver sand and half an inch beneath the surface, plunging the pots or pans in a bottom heat of 80°, and in a house with an artificial temperature of 60° to 65° at night. Cut-backs—Vines raised from eyes last spring, and not of a strength for fruiting or planting—should be cut back to an eye or two, as near the soil as possible, dressing the cuts with styptic or patent knotting. When they have made 2 inches of growth shake them out and repot in turfy loam rather rough, with a sprinkling of finely crushed steamed bones, 6 or 7-inch pots being quite large enough. The pots may be plunged in bottom heat, but it is not essential; suffice if the house be kept at a proper temperature—60° to 65° at night, 70° to 75° by day, advancing 10° to 15° from sun heat, and the Vines are trained in abundance of light.

THE KITCHEN GARDEN.

POTATOES IN POTS.—These are not very profitable, but a few extra early dishes, obtained by means of pot culture, are usually well appreciated. Shelves in Peach houses, vineries, or other structures where a gentle heat only is maintained are the best positions for these early Potatoes, and 8-inch or slightly larger pots answer well, though larger sizes may be used when the fronts of the houses are the places selected for the purpose. A suitable compost consists of two parts of light loam to one of old Mushroom bed refuse. Lightly drain the pots, then half fill with the soil, making this rather firm. Place a single strongly sprouted tuber in each 8-inch pot, and surround with sufficient soil to about three parts fill the pot, which will allow space for a good top-dressing. This to be given when the shoots are level with the rim of the pots. Water sparingly at the outset, and let them have plenty of light, or otherwise the growth will be spindly and the crops light. Sharpe's Victory, Early Border, Old Ashleaf, Mona's Pride, and Veitch's Improved Ashleaf are all suitable for pot culture.

POTATOES IN PITS AND FRAMES.—Profitable crops can usually be had from either pits or deep frames without very much trouble. A gentle hotbed of leaves on well-prepared manure and leaves in mixture is most necessary in the case of the earliest crops, but can be dispensed with if need be for the later supplies. Potatoes ought not to be grown far from the glass, therefore raise the beds well up to the lights of pits, the frames being set on hotbeds about 4 feet deep at the back, with a slight slope to the front, and about half filled with the heating material. Not less than 9 inches of light and fairly rich loamy compost should be spread over the surface of the bed, and directly this is warmed through, and all risks of the bed overheating be past, the planting may well be completed at once. Varieties recommended for growing in pots are also suitable for frame and pit culture, medium-sized strongly sprouted sets being selected. Open drills about 15 inches apart and 5 inches deep, and dispose the tubers 6 inches apart, carefully levelling with the hand. If seed of early Radishes is sown very thinly and broadcast, a few bunches of tender roots will be obtained before the Potato haulm requires all the space. The soil being in a fairly moist state, it will be some time before water is required beyond what may be given to the Radishes, but it is unwise to let the soil become very dry. Keep the frames close till the shoots are well through the soil, and then ventilate with moderate freedom, closing somewhat early, and well covering up with mats or litter every night—that is, if there is no top heat afforded.

SPROUTING POTATOES.—It is very injurious to seed Potatoes

generally to allow them to sprout prematurely, and quite ruinous to the Ashleaves. The latter ought always to be planted with the first strong central sprout intact. If this is lost those that follow are much weaker, and the crop lighter accordingly. All of these, therefore, and as many more as there are conveniences for, ought to be kept either thinly stored, or better still, packed closely together in a single layer, sprout end uppermost. Any wanted for forcing may well be introduced into gentle heat to make good progress while the frames or pits are being got ready for them, but all the rest should be kept as cool as possible, plenty of light also favouring the production of extra strong and not too forward sprouts. Even the commoner later round and kidney varieties ought to be prevented from being weakened by premature sprouting, and if not already done the planting tubers ought to be at once separated from those to be eaten, and stored thinly in a light place. We may yet have more very severe frosts, and seed Potatoes must be carefully protected from these. Medium-sized tubers are the best for planting, substituting small ones or such as are more fit for the pigs being the reverse of economical.

FORWARDING PEAS.—It is not often Peas in pots produce sufficiently to pay for the trouble taken with them, but when they are particularly wanted as early as possible the cost of production is rightly overlooked. Hard forcing is out of the question, but they may be gently forwarded so as to have dishes three weeks in advance of the outside crops, and a fortnight earlier than those grown in frames. Chelsea Gem and William Hurst are both admirably adapted for pot culture, and the newer British Wonder (Cannell) should also succeed well under similar conditions. Newly started vineries, Peach, and Fig houses are suitable for forwarding Peas, and they may be grown in either ridges of soil, boxes, or pots, the two former being the best when they are to be located along the fronts of fruit houses, whilst pots are most suitable for shelves and stages, and are most generally preferred. Use 9-inch pots, lightly draining these, and rather firmly fill with rich loamy compost, to which a sprinkling of wood ashes has been added. Sow the seed thinly, or no thicker than they are distributed in the open ground, and cover with about 2 inches of soil. Water carefully at first, but when the pots are becoming well filled with roots, water varied with liquid manure will be required in abundance. The plants must be early supported by Birch spray or some other kind of stakes, and receive all the light and air possible, high temperatures being especially to be avoided.

PEAS IN FRAMES.—With the aid of a rough frame or pit, glazed or otherwise, several very acceptable early dishes of Peas may be had, and also at the same time a very serviceable lot of Lettuce. For three or four lights sow a pint or rather more of one of the varieties recommended for pot culture in boxes filled with light sifted soil and place in gentle heat till the plants are about 3 inches high, when after being slightly hardened they will be ready for the pit or frame. The latter should be prepared in readiness for these plants, keeping Peas a few days too long in boxes or small pots spoiling them. A very slight hot-bed, or just sufficient rapidly decaying heating material to give the plants a good start, is desirable, but can be dispensed with. The Peas should have not less than 9 inches of good loamy soil to root in, and a layer of short manure underneath. In planting open trenches with a spade fully 8 inches deep and 15 inches apart, shake the plants clear of the soil and replant much as Box edging is laid, the roots being dropped in to their full depth, and carefully fixed with the soil about them. Dibble out a row of newly raised plants of Early Paris Market or Golden Queen Cabbage Lettuce between the Peas, and water if the soil is at all dry. Lights being available keep all rather close for a time, ventilating more freely when the plants are growing afresh. If there is sufficient depth lightly stake the Peas directly they are planted. Cover the lights with mats every night. If there are no glazed lights for covering protect with mats or shutters every night.

MINT AND TARRAGON.—Both are usually in demand in most establishments, and forcing ought to be practised. Lift a few flakes of fleshy roots or thin clumps, and pack these closely in boxes filled with fairly rich soil. Placed in gentle heat a number of young shoots will soon be available. Mint, roots, and shoots are quite capable of holding their own against most evils, but the finest growth is had by replanting frequently, fresh beds being formed in good soil. Slugs are the greatest nuisance where Tarragon is concerned, and ought to be trapped as much as possible. Top-dress old beds and form new ones.

PLANT HOUSES.

Ferns.—If the temperature at night can be kept from falling below 50° potting and top-dressing may be pushed on. Although Ferns will succeed in the same pots for years they make greater progress and larger fronds when supplied with fresh soil occasionally. When in pots sufficiently large it becomes necessary to reduce the roots to supply them with new soil. This will seriously check them for a time, but long before the close of the season they will be growing vigorously again, and continue to do well for years. Before commencing these operations, however, the soil should be in an intermediate state of moisture, and must not be wet either for repotting or top-dressing. Those that need the latter only should have the drainage regulated if necessary and the plants returned to the pots, a little new soil being placed on the surface. We invariably sprinkle a little artificial manure on the surface before placing on the new soil. Those that need repotting are potted on as far as we can carry out this work, only removing the drainage. The majority of Ferns do well in a compost of fibry loam and leaf mould in equal proportions, with the addition of sand, charcoal, and lime rubbish. After potting supply water carefully, but syringe

freely amongst the pots, and keep the house moist. The plants will not be long before they commence pushing up new fronds, and will early in the season be well furnished and in the best possible condition.

Palms.—Any sponging or cleaning required should be done, and the house thoroughly cleaned. As these plants do not need repotting annually, often for various purposes having to be kept in certain sizes as long as possible. They may have the surface soil removed, a little artificial manure applied to the surface, and the soil top-dressed with loam, sand, and a little decayed manure. It is a good plan to add one 6-inch potful of soot and the same quantity of bonemeal to each barrowful of soil. They can be kept healthy and the fronds a rich green by the aid of a rich top-dressing annually, two or three applications of artificial manure during the season, and soot water in a clear state. Plants that are to be grown on should be repotted as the roots increase. The majority of Palms do well in equal parts of good fibry loam and leaf mould with the addition of the bones advised above, sand, and a little charcoal. The pots must be well and carefully drained, and the soil pressed firmly into them. We have long since discontinued the use of peat for these plants, except Cocos Weddelliana, which prefer peat, in fact it does not do well with us in loam. After potting the temperature should range from 55° to 60° at night. Water carefully, and maintain a fair amount of moisture in the house. Those in houses 10° lower should not be repotted for another month.

Marantas.—Where a hotbed has been made and is ready for plants to be plunged or stood on the surface, these plants may be repotted. It is a good plan to repot them early so that they become established before the sun gains much power. These plants will bear division according to circumstances, or they may be placed into larger pots without disturbing the balls. Where the plants are large enough, and larger pots are not desirable, reduce them carefully by removing the old soil from amongst their roots. The stronger growing kinds, as a rule, do well in loam used in a rough state, leaf mould, charcoal in lumps, and sand. Peat should form the principal compost for other kinds. The plants should be carefully watered until they are rooting freely, when they will bear liberal supplies.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

BETWEEN the 15th and 22nd inst. the weather was changeable; the highest temperature of the week was registered on the 22nd and the lowest on the morning of the 16th, being 13° and 35° respectively. The severest frost took place with a low barometer, about 29°. When this occurs the atmosphere is always chilling. I have long observed that bees withstood a zero temperature better when the barometer stood at 30° than when it was at 29° or less and the thermometer at 15°.

THE PUNIC BEES.

My curiosity has now been gratified and my anxiety allayed. Both of my pure stocks of these bees have shown themselves on the wing and healthy with the thermometer at 35°. The hive had only three dead bees on the alighting board; these had been flying during the rain, and were caught upon the board and died. The Punic bees are good sanitarians, and will not allow any offensive matter within their hives, consequently I do not expect to see many more dead bees from them. As the sun is shining, and bees flying, I go out to see them. The thermometer has risen to 38°, the highest for the year. Many bees are on the wing; a first cross Cyprian is crowding out. All, including the Punic bees, appear healthy, with few or no dead bees. As I am perfectly satisfied the Punic bees can withstand the severity of our winters I will next devote my attention to their behaviour throughout the spring months.

I infer from the hint Mr. Cowan threw out about the Syrians and "A. H. B. K.," that they were worthless bees. I wonder it did not occur to him that the Syrians bear the highest record of honey gathering in one day, as well as in three successive days, than any bee at that time imported. Of course, these bees were managed in a way to give satisfactory results.

NAPHTHALINE AND FOUL BROOD.

I have had numerous inquiries about naphthaline and its efficacy in preventing foul brood. Mr. James Wilson, Dalnair, asks, "Are the ingredients sold by the editors of some bee journals for foul brood to be depended upon?" I am only too

glad to say I do not know, as I consider it much better to manage bees in a way that their combs and contents do not become predisposed to foul brood, than to resort to one nostrum after another in rapid succession. Naphthaline has been used largely amongst medical practitioners in various diseases, including those of the lungs, for perhaps more than a century. It is a bicarburet of hydrogen, distilled or sublimed from coal tar, naphtha, or petroleum. It might be said to be the soot from that substance. Naphtal beta is, perhaps, a second or bi product from the first. Camphor, if we extract the oxygen it contains, is a type of both. Coal tar possesses all the properties of these antiseptic preparations from it, of which creoline is one. I consider that the tar caught at the extreme interceptor at our gas works would serve the purpose better than the two first mentioned ingredients, which costs from 3s. to 4s. per lb. Where ventilating floors are employed a little put on, say twice a year during summer, will be as efficacious, because it contains the essential oil which forms the antiseptics that evaporate slowly, but surely long after it is dried. My advice is, Stamp out the plague on its first appearance, put the hive and bees through the purgatorial process, and manage them so that the air within is always sweet. The warmer the hive and weather the quicker the disease spreads, and when once infected it cannot be cured profitably.—A LANARKSHIRE BEE KEEPER.

TRADE CATALOGUES RECEIVED.

J. Carter & Co., 237 and 238, High Holborn.—*Select Lists of Chrysanthemums and Cacti.*

Fotheringham & Co., Corn Exchange, Dumfries.—*Seed Catalogue.*

W. Drummond & Sons, 58, Dawson Street, Dublin.—*Catalogue of Vegetable and Flower Seeds.*

H. Cannell & Sons, Swanley.—*Catalogue of Seeds.*

Thomas S. Ware, Tottenham.—*Catalogue of Begonias, Dahlias, Flower and Vegetable Seeds.*

John Jefferies & Son, Cirencester.—*Catalogue of Seeds and Bulbs.*

J. R. Tranter, 3, Hart Street, Henley-on-Thames.—*Catalogue of Vegetable and Flower Seeds.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Prickly Comfrey (*E. C. A.*).—A pamphlet on the subject was issued several years ago, but we suspect is not now obtainable. Comfrey is as easily grown as Rhubarb, but many persons could not induce their animals to eat it, while others had greater success.

A Green Carnation Flower (*L. G. P.*).—There is no doubt the flower you sent has been coloured artificially, probably by dipping the flower lightly, before it was fully expanded, in some green liquid. Such a disfigurement is certainly not worthy of being imitated, but you could easily try the experiment if you wish to do so. In our "Notes and Gleanings" this week you will find further reference to this subject.

Covering Vine Border (*A. B. C.*).—Your house not being started until the end of February, will not need more covering material than a few leaves with a little stable litter over them to prevent their blowing about. Three inches thickness is sufficient, and the covering should be removed in May, leaving not more than a couple of inches of the shortest material as a mulch. The border may be lightly pointed over, not going so deeply as to injure the roots, and you may then apply a top-dressing of this mixture:—3 lbs. superphosphate, 1 lb. nitrate of potash (saltpetre), and 2 lbs. sulphate of lime (gypsum); mix, and apply at the rate of 4 ozs. per square yard, distributing it evenly on the surface before putting on the covering of leaves. There is no need to work it in—the rain will do that fast enough, and it will be available

for absorption by the roots by the time the Vines are in growth and needing support.

Oversheltered Garden (*R. H. J.*).—Undoubtedly the Lime trees on the south side must do much more harm than good to the garden, but sometimes there are other reasons for the retention of screen trees, which impoverish the soil and shade garden crops prejudicially. The trees on the north side if kept closely cut in hedge form would not do any material injury, though the garden would be quite as good without them.

Dendrobium nobile (*J. M. T.*).—This Dendrobium will flower on two-year-old pseudo-bulbs, and also on those of the current season when they have been thoroughly matured. If the growths are made early and well ripened there is no difficulty in flowering one-year-old pseudo-bulbs. D. Parishii requires to be grown strong, and enjoys a lengthened period of rest. It should be kept as dry as is consistent with not causing the pseudo-bulbs to shrivel.

Potting Lillium auratum (*Doctor*).—In potting the bulbs the pots should not be more than two-thirds filled with soil, the bulbs resting on a little silver sand, and the soil placed around and over the bulb, leaving the top and bud uncovered. The bulbs after potting will do excellently in a cold vinery, provided they are kept from frost. When the plants have shoots above the rim of the pots they should be top-dressed with richer soil than that used for potting, into which the roots that appear on the stems just above the bulb can push and obtain nourishment.

Allamanda Treatment (*Idem*).—The probable cause of the Allamanda not flowering is a deficiency of light, the growths not being thoroughly solidified as made, and the wood imperfectly ripened. It should be kept dry at the roots, affording no more water than necessary to prevent the wood shrivelling; and after a month of this treatment it may be pruned, cutting the growths back to one or two plump buds on firm wood at their base, and where extension is required or growths needed longer in some places than others shorten the best shoots to five or six joints, always to firm well-ripened wood. Then repot the plant, reducing the ball about one-third, cutting off the straggling roots, and return it to the same size of pot. If the plant needs a larger size of pot merely remove the crocks and loosen the sides of the ball, giving a pot 2 or 3 inches larger. Water carefully until fresh growth is made, then supply it liberally when necessary. Grow in the lightest possible position.

Camellia Buds Dropping (*Idem*).—The Camellias are showing the effects of immature wood by pushing fresh growths, accelerated by free root action. There is no remedy but to secure the more perfect and better ripened condition of the growths, which can only be effected by exposing them to all the light they will bear without scorching, so as to thoroughly solidify the growth, and ensure complete development of the buds. The flowers will then expand properly before fresh growths start; but some varieties are prone to push growths, which take from the support of the buds, causing their fall. Thoroughly ripened wood is the only remedy.

Cyclamen Flowers Indifferent (*Ashdown*).—The flowers are large, have plenty of substance, but crumpled, and lack some essential condition for perfect development. You give no particulars of your treatment; therefore we are only able to form an opinion from the flowers, and those suggest defective root action or nutriment. A light top-dressing of some approved fertiliser—say a pinch of dissolved bone (superphosphate) to each pot, about a thimbleful sufficing, watering in, might act beneficially. The temperature should range between 50° and 55°, with a genial atmosphere, secured by damping available surfaces occasionally.

Eucharis grandiflora (*J. W.*).—From the description you give of your plants they appear to be infested with the "mite" that attacks these plants and which has ruined large numbers throughout the country. Insecticides are sold, which are said by some to destroy these pests, others have advised the use of lime water as a remedy; but many have failed to eradicate the "mite" and restore the plants again to health and vigour by any of these methods. If you have in potting selected only the largest bulbs, throwing the smaller ones away, as is frequently done, we advise you to keep the small ones, thoroughly wash them and their roots in a weak solution of Fir tree oil or other insecticide, and then pot them. They may grow vigorously, and do well for some years. When they are once infested it is very difficult to clean them. We are acquainted with gardens in which Eucharises used to grow like weeds, and now they cannot be induced to grow even by the greatest care and attention.

Autumn Broccoli (*E. T. H.*).—The Early White Cape is certainly of neat growth, but is extremely tender, or as much so as any Califlower. The Walcheren is equally compact, and sown about the first week in May should under good culture commence hearting early in September. Veitch's Self-protecting Autumn, though not so dwarf as you appear to desire, is yet much superior to either of those named, the quality of the hearts almost rivalling the best Cauliflowers. The first sowing of this variety might well be made in a pan under glass, and in order to have a long succession sow again in the open from the middle to the end of April. Plenty of good sized hearts will be had by putting out the plants in good ground 18 inches asunder in rows 2 feet apart, but they pay well for being allowed rather more space. Seeing that the greater part of these early crops would have been used before severe frosts are experienced, it does not matter greatly if the plants become somewhat tall, and they might well, therefore, be put out between rows of Early Ashleaf or other comparatively short-topped Potatoes 3 feet apart. If the later plants are roughly protected good hearts may be had up to mid-winter or even later.

Manure — Sources of Plant Foods — Carbonic Dioxide (*Reader*).—1, We understand by the word manure the introduction of vegetable, animal, and mineral matters into the soil to accelerate vegetation and increase the production of crops. 2, We know by modern researches upon plant nutrition, and the chemistry of agri-horticulture have shown us that the sources of plant foods are the air and soil. Air food consists of ammonia, water, and carbonic dioxide; soil food of those substances that remain as ash when the plant is burned. The former class of food is supplied to the plant partly from the atmosphere and partly from the soil, the latter from the soil entirely. Water, carbonic acid, nitrogen, and hydrogen chiefly supplied by ammonia, and a proportion of earthy salts, form the chief food of plants. These substances are absorbed or taken in by the plant from the atmosphere and from water, either in a state of vapour or from moist soil. 3, Carbonic acid (dioxide) passes into the plant from the outside through its stomata with the air, and under the influence of light is broken up in the cells containing chlorophyll. All the carbon and part of the oxygen of the carbonic acid are retained by the plant, and part of the oxygen escapes into the outer air.

The Constantinople Nut (*W. B., Essex*).—The species of *Corylus* known in gardens are comparatively few. In the west of

C. Avellana and C. Colurna, and another form termed arborescens is distinguished by its involucre being very finely cut, by the spreading habit of the tree, and by its rapid growth.

Tuberoses (*J. M. T.*).—You have either kept the plants too dry or checked them in the later stages of their growth. They need liberal supplies of water after they are once started and are rooting abundantly in the pots in which they are to flower. Keeping them dry after the flower spikes were advancing a stage, when they needed most nourishment, is alone sufficient to account for the flowers failing. You do not give the temperature of the vinery in which they had been grown previous to taking them to the stove. If cool, the sudden change would prove detrimental and too forcing; this combined with too little water would bring about the condition you have described. You cannot do better than keep the bulbs in any cool place where they are safe from frost and dry, but not dry enough to shrivel. They should be potted from the middle to the end of May, but before potting disbud them—that is, remove all side eyes that only spring up after, and rob the spike. Pot them in a mixture of good loam three parts, the remaining part leaf mould, sand, and one-seventh of decayed manure. Start them in a vinery or any house kept moderately close until they commence growing and rooting. In this stage they need very careful watering. It is a good plan to place the pots together and cover the surface with cocoa-nut fibre refuse, just leaving out the crown. If the syringe is used occasionally to keep the surface damp they will need no water until they begin growing, provided the soil was in an intermediate state for moisture when potted. When the plants are growing and rooting freely they should be removed from the vinery, if started in that structure. If gradually hardened the best place for them is a cold frame or greenhouse. If the lights can be thrown off during hot bright days all the better. Some care is needed at first not to check the plants until they will bear cool airy treatment. We have grown them well by plunging the pots in ashes outside from the beginning of July to the end of August, when they were throwing up their flower spikes. They should then be removed to a cool airy house. The temperature can be gradually increased to bring them into flower whenever required.

Names of Plants.—(*J. T. C.*).—1, *Cypripedium Harrisianum*; 2, *Cypripedium villosum*; 3, *Begonia ferrea*; 4, *Todea hymenophylloides*; 5, *Begonia lucida*; 6, *Polypodium pectinatum*.

COVENT GARDEN MARKET.—JANUARY 27TH.

TRADE still quiet. Grapes in good demand.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	to	4	0	Grapes, per lb.	1	6	to 3 6
Apples, Canada and Nova Scotia, per barrel	12	0	18	0	Lemons, case	15	0	2 0	
Cobs, Kent, per 100 lbs. ..	35	0	40	0	Oranges, per 100	4	0	9 0	
					St. Michael Pines, each ..	3	0	6 0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb.	0	4	to	0 6	Mustard and Cress, punnet	0	2	to	0 0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches	2	0	3	0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	2	0	3	6	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	6	0	to	9 0	Maidenhair Fern, dozen				
Azalea, dozen sprays ..	1	0	1	6	bunches	4	0	to	9 0
Bouvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6	3	0
Carnations, 12 blooms ..	2	0	3	0	Mimosa or Acacia (French)				
Christmas Roses, dozen					per bunch	1	0	2	0
blooms	1	0	1	6	Narciss (French) dozen				
Chrysanthemums, dozen					bunches	3	0	6	0
blooms	0	9	3	0	Pelargoniums, 12 bunches	9	0	15	0
Chrysanthemums, dozen					„ scarlet, 12 bunches	6	0	9	0
bunches	4	0	12	0	Poinsettia, dozen blooms..	4	0	9	0
Cyclamen, dozen blooms ..	3	0	6	0	Primula (double) 12 sprays	0	6	1	0
Eucharis, dozen	6	0	9	0	Roses (indoor), dozen ..	1	6	3	0
Euphorbia jacquiniæflora					„ Red, per doz. blooms..	2	0	4	0
dozen sprays	3	0	6	0	„ Tea, white, dozen ..	1	0	3	0
Epiphyllum, dozen blooms	0	6	0	9	„ Yellow, dozen	3	0	6	0
Freesia, dozen sprays ..	4	0	6	0	Tuberoses, 12 blooms.. ..	1	0	1	6
Gardenias, per dozen ..	4	0	8	0	Tulips, dozen blooms.. ..	1	0	2	0
Hyacinths, dozen spikes ..	6	0	9	0	White Lilac (French) per				
Hyacinths (Roman) dozen					bunch.. .. .	6	0	7	6
sprays.. .. .	0	6	1	0	Violet Parme, French belis.	4	6	5	6
Lilium longiflorum 12					„ Czar	2	6	3	0
blooms	6	0	9	0	„ „ small bunches	2	6	3	6
Lilium (var.) dozen blooms	2	0	4	0	„ English, dozen				
Lily of the Valley 12 sprays	1	0	2	6	bunches	1	6	2	0
Marguerites, 12 bunches ..	3	0	4	0					

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ferns, in variety, dozen ..	4	0	to 18	0
Azalea, per plant	2	6	3	6	Ficus elastica, each	1	6	7	0	
Chrysanthemums, per doz.	4	0	9	0	Foliage plants, var., each..	2	0	10	0	
" large, doz.	12	0	24	0	Hyacinths, per dozen	6	0	0	0	
Cyclamen, per dozen	12	0	18	0	Lily of the Valley, per pot	2	0	2	6	
Dracæna terminalis, dozen	54	0	42	0	Marguerite Daisy, dozen ..	6	0	12	0	
" viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0	
Epiphyllum, per pot	1	6	2	6	Palms, in var., each	2	6	21	0	
Erica gracilis, per dozen ..	9	0	12	0	Pelargoniums, scarlet, doz.	4	0	6	0	
" hyemalis, dozen	12	0	18	0	Poinsettias, per dozen	9	0	15	0	
Euonymus, var., dozen ..	6	0	18	0	Solanum, per dozen	9	0	12	0	
Evergreens, in var., dozen	6	0	24	0	Tulips, dozen pots	7	0	9	0	



FIG. 11.—THE CONSTANTINOPLE NUT.

Europe we have C. Avellana, the common Hazel, which in its numerous varieties affords us both useful and ornamental trees; then in the east, Turkey and Asia Minor, is found C. Colurna, the Constantinople Nut. Nepaul gives us C. ferox, while North America yields C. americana and C. rostrata. These may be taken as types of the Hazels, but except the first-named they are seldom seen in collections of trees, either as curiosities or ornaments. C. Colurna especially might well receive more attention, for when planted in a situation adapted to its requirements it becomes a distinct and handsome tree, which is rendered still more remarkable when fruiting freely. The nuts are enveloped in and almost concealed by a large and deeply cut involucre, the segments of which are curiously twisted and curled, as shown in the illustration (fig. 11). This character is strongly developed; but it is not peculiar to C. Colurna, for in the Frizzled Filbert, C. Avellana crispa, and the Indian Hazel, C. ferox, a similarly cut involucre is produced. A variety or hybrid named intermedia is thought to have resulted from a cross between



TECHNICAL EDUCATION.

MUCH doubt has been expressed as to the wisdom of the new departure by county councils in their endeavour to improve the condition of the people by a course of technical education, to be imparted by lecturers, presumably selected with great care by organising committees. In many instances which have come under our notice this has been well done, the lecturers being both well chosen and well paid. In others the serious mistake has been made of bargaining for cheap men, who of course are forthcoming, as it is certain that plenty of adventurers would be on the alert to take advantage of such an opportunity. Then, again, mistakes have been made as to the number of lectures requisite to convey any special subject to the comprehension of the hearers. All this was to be expected, council councillors as well as ordinary mortals having to buy their experience, and we doubt not that another winter will witness an improvement in all this.

Agriculture of course takes a leading place in such a scheme, and equally, of course, exception has been taken to such teaching by those who hold that farmers have nothing to learn, that so perfect is their practice improvement is impossible. Such absurd prejudice is only to be met by the logic of facts. This has been done admirably by experiments at Rothamstead, Woburn, and elsewhere. Repeatedly has it been proved that agriculture languishes here, that we are beaten by foreigners because we lack energy, enterprise—aye, and knowledge too, because we have been content to shuffle on in makeshift fashion, tillage, manure, crops, live stock all being faulty. Again were we taught last year that underbred cattle are the sport of market fluctuations; that well bred well fed beasts continue steadily to command a price that pays. Did Essex farmers show prescience, business capacity, or anything like comprehension of the evil and its remedy when hard times fell upon them? We might go on and tell once more of inferior crops from inferior seed or insufficient manure, or both; of live stock suffering much or lost outright from exposure; of the persistent cultivation of unprofitable crops, of unmarketable dairy produce, of a foolish clinging to custom for the mere sake of it.

No, farmers, in common with all other men, must admit that improvement is possible, that dairy and fruit farming may both be extended indefinitely. Last year nearly £1,000,000 worth more butter was imported than in 1890, and nearly £500,000 worth of margarine. In all £166,000,000 was spent for imported farm produce, nearly £52,500,000 of which went for meat and dairy produce, and the importation of eggs is steadily on the increase. The importation of fruit, too, is on the increase. Never were American Apples finer or more abundant. Quality is insured by the American fruit farmer's system of grading, only the best fruit being so exported, the second size being reserved for drying, the third, or smallest fruit, being sent to the cider mills. The trade in dried or evaporated fruit has also assumed gigantic proportions, England and the chief European continental powers being apparently content for the keen-witted American farmers to grow, prepare, and send it to them.

That fruit will drive corn from the land has been treated as an absurdity, yet it has done so in a considerable part of Kent and in the United States of America. In twelve of the most fertile counties of Western New York the cultivation of fruit, especially of Apples, has within the last fifteen years superseded that of every other crop. This would not have happened had it not

been for fruit evaporation. The process is most simple. By it the water is driven off—evaporated—and all the nutritious saccharine matter retained. What do British farmers know about this industry? What, indeed, do they know of fruit farming, to say nothing of fruit evaporation?

Surely, then, it must be owned that there is a want of technical education in agriculture. The movement is in the right direction, and will be successful if only due care is exercised in the selection of really practical men as lecturers and not mere theorists, but men of much experience, whose words will have weight. They have a fine field, and the chief difficulty is to confine the first course of lectures well within due bounds, not attempting teaching too much, but rather to proceed step by step, making each subject quite clear, so that the lessons may easily be applied to practice. A few points well enforced do much more real good than many conveyed in an indistinct manner to the hearers' minds. Discussion is also good, and should always be invited, questions asked and answered often leading to an animated and useful discussion—all the more useful if practical men take part in it.

WORK ON THE HOME FARM.

Owing to a wet autumn much winter corn was sown in land not properly manured; let this not be forgotten, but take care and apply a liberal spring surface dressing early enough to insure it being dissolved and washed in by rain showers. The Wheat plant is full and sturdy. Give it 1 cwt. nitrate of soda and 2 cwt. superphosphate about the end of February, taking care to mix the manure carefully before sowing it broadcast. This is a cheap, efficient, and under the circumstances the best possible dressing for the Wheat. If the land is in good heart a hundredweight of nitrate of soda alone may be best. Be it understood that this is a matter calling for some judgment, and we can only advise generally what should be done. Much Wheat was flooded after the sowing, and much nutriment was probably carried away in the drains. All this requires consideration, and a little money spent in the direction indicated goes far to bring a full crop. It never answers to sit down under such adverse influences, but rather should we always rise to an emergency and adapt our measures for success to it. The farmer's calling is beset with difficulties of this kind, and his aim must be always to try and rise superior to them. It is only the man who has energy, intelligence, and capital who can do this. Once more we say, Keep your holding well within your means, and do what you undertake in the best way.

The first month of the year will soon be gone. February is the month in which to obtain supplies of chemical manure for spring corn, green crops, and permanent pasture. Annual dressing, large or small, there must be, according to the condition of the land, which only can be known to the farmer himself. Bear in mind that exhaustion in some degree—exhaustion of fertility of soil—after every crop, our aim being always to replenish and so keep the land stored with plant food. If only this timely hint is turned to full account full crops of all kinds may be had. Avoid all doubtful mixtures. Buy only pure manures from a reliable source; mix carefully, apply with judgment, then results are practically assured. Keep the farmyard manure in reserve for the root crops, and see that the dressing of it is liberal.

METEOROLOGICAL OBSERVATIONS.

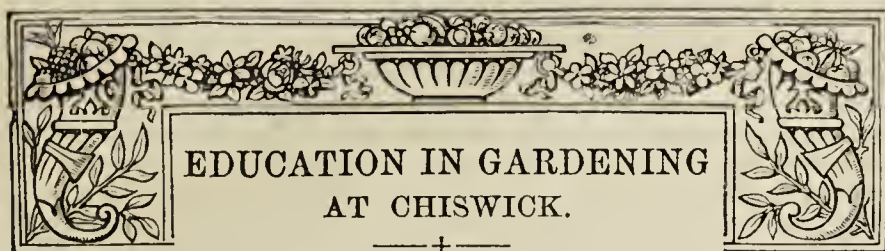
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892. January.		Barometer at 32° and Sea Level.	Hygrometer.		Diree- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	17	29.607	33.5	32.4	N.	34.0	37.7	30.8	44.9	27.6	—
Monday ..	18	29.754	37.2	36.3	E.	34.0	43.3	33.1	45.1	28.2	—
Tuesday ..	19	29.880	36.1	35.2	E.	34.0	37.0	34.7	41.0	30.2	—
Wednesday ..	20	29.886	35.0	33.3	N.E.	33.9	38.2	32.2	47.9	27.2	—
Thursday ..	21	29.991	32.6	32.0	N.E.	34.0	43.0	30.0	44.2	26.3	0.010
Friday ..	22	29.888	42.7	41.8	S.W.	34.1	46.9	29.9	51.0	23.4	0.128
Saturday ..	23	29.984	46.3	46.2	S.W.	35.0	50.2	40.1	53.6	34.9	0.028
		29.856	37.6	36.7		34.1	42.3	33.0	46.8	28.3	0.166

REMARKS.

- 17th.—Rain early, freezing on the ground as it fell, and occasionally till 10 A.M., then fair, with occasional sunshine; overcast afternoon and evening.
 18th.—Gloomy and hazy throughout.
 19th.—Overcast all day.
 20th.—Cloudy early; frequent sunshine after 11.30.
 21st.—Cloudy early; slight fog at 9.30, dry smoke fog, increasing steadily, and gas necessary from 11.30, very dark from noon to 2 P.M.; fairly clear after 3 P.M.
 22nd.—Dull, with spots of rain early; drizzle afternoon, wet after 4 P.M.
 23rd.—Dull and drizzly morning; fine afternoon.
 A dull, damp week, much warmer than the previous one.—G. J. SYMONS.



WE have received letters from correspondents in reference to the Royal Horticultural Society's proposed scheme of technical education in gardening, and it has been made abundantly clear to us that both gardeners and amateurs desire an expression of our views on that scheme. In intention it is admirable, and nothing would please us better than to be able to foresee the probability of good practical results accruing. The project appears to divide itself into two essentially dissimilar parts. 1, Spade industry on small holdings for purposes of practical usefulness to the tillers. 2, Establishing a British school of gardening for the training of young men in all the details of the craft for making them efficient in the calling they hope to pursue.

It is undoubtedly most desirable that not only "small holdings" but large tracts of land should be more highly cultivated, and thus rendered more productive; but at present we fail to see that many persons whose holdings, actual or prospective, come under the denomination of "small" will feel themselves justified, even if able, in spending a year or two at Chiswick, at a cost of about £45 per annum, to learn the art of spade husbandry. That useful knowledge might be gained on land in working and cropping by the inexperienced goes without saying, but how far those who purchased that knowledge on the terms indicated would benefit by it, or how soon they would recoup the outlay invested, are questions entirely problematical. The probability is that a small percentage might realise the object of their hopes, but it is at least equally probable the majority would be in some measure disappointed. It is very much a question of individuality and surrounding conditions as to whether student's who might seek to acquire knowledge in the art of spade husbandry would be able to derive a commensurate return on the time and outlay invested in their education. It is not easy to see that lower terms could be offered, but the amount, small as it is for a year's food and instruction, cannot be paid by the great majority of workers, whose chief object is to obtain a livelihood mainly by manual labour on the land.

Possibly there are among the affluent classes some who may desire to educate their sons in the science and practice of land cultivation with the object of their becoming directors of labour on spade-worked land on estates in different parts of the country. In such case a few apt students and energetic workers might be able to show their efficiency, competing successfully with growers of produce for sale who have gained their experience by long years of activity on the land and in the market, but we are inclined to think the issue of the contest, broadly speaking, would be in favour of those who were, so to say, born to and in the work. By far the best schools of gardening for commercial purposes now existing in this country, if not in any other, are the best managed market gardens, where high culture is combined with smart business experience in disposing of the produce to the best advantage.

Passing to the next, and not in the interest of our readers the least important part of the scheme, the "School of Gardening," the more we think about the scheme as set forth the more convinced we become that it cannot in any reasonable time fulfil the expectations that will be raised in the gardening community. All who have had much practical experience in supplying the homes of the wealthy with the produce of gardens well equipped for that

purpose with fruit, vegetables, and flowers, not in their natural season only, but as far out of it as possible, and who are, at the same time, acquainted with the resources of Chiswick, must know that these resources are wholly inadequate for giving young men from fifteen to eighteen years of age "a thoroughly practical training in all the details of their craft." It may be said that though the essentials for such complete training may not exist now, they will follow by the initial outlay of £1000. Most experienced gardeners familiar with the Chiswick gardens as they are must know the suggestion is wholly optimistic. Not for a long time to come, and with the expenditure indicated, could the Chiswick School be made to bear any favourable comparison with hundreds of established schools of gardening in various parts of the country. We wish it were otherwise, and should rejoice to see the historic establishment sufficiently equipped for giving young men a "practical training" in "all the details" of the art of gardening. A great deal that is good may be taught there practically, but to teach all that is promised is out of the question.

Scientific instruction may unquestionably be given, because the Society can have no difficulty in obtaining the services of competent lecturers, and their teaching would doubtless be quite sufficient to "enable the students to take an interest in and gain an insight into the manifold operations of Nature, which they will in after life be concerned." With that we cordially agree, and it is very desirable that the gardeners of the future should conduct their practical operations on a scientific basis, and be able to give a sound reason for every step they take in working for a definite issue. We have to remember that very much appropriate and scientific knowledge can be gained, and has been acquired, by gardeners by reading and study. Not a few of our gardeners act on scientific lines, and some without knowing it, in the conduct of their operations, and consequently pursue the most direct course to the end and object they have in view. Scientific instruction can be given at Chiswick if classes are established, and it will be for gardeners to consider whether they will send their sons, and for young men to decide whether they will invest of their means for receiving such instruction *plus* practical instruction such as it is within the means of the establishment to afford.

Probably the tendency of the scheme will be to attract as students the sons of professional men and others in well-to-do positions, who are in doubt as to "what to do with the boys." Gardening is tempting to many, and it is because of this that the supply of gardeners so much exceeds the demand as to bring down their wages to about the average of those of bricklayers' labourers, and below those of butlers and valets. Is it desirable to offer temptations for increasing the supply? Is not the natural rate of manufacture sufficient to meet all demands? It may be urged that it is desirable to have more highly educated men in the ranks. It would be if the demand for such men exceeded the supply; but does it? There are as many men of bright intelligence to be found amongst British gardeners as among men similarly engaged in any other nation in Europe, and men abroad, as well as at home, who come into a different category, and useful, industrious, and honest many of these toilers are. There will always be a demand for men whose labour is more highly regarded than their intellects, though we know quite well that some of the most intellectual gardeners are at the same time, to employ an expressive term, "gluttons for work." Intellectual workers are just what we need, and we believe with the sure and steady progress of education and sterner competition we shall have sufficient of them without creating a supply by special inducements.

Is there not a good deal of sentiment connected with the craving for schools for horticulture? Having regard to gardening in its broadest aspects there are no schools of horticulture in existence equal to the best managed private gardens in this country; and we

say further, that taking them in the aggregate, and in comparison with the aggregate of other countries, there are no gardeners on earth to surpass, if equal, the gardeners of the United Kingdom.

PREPARING POTTING COMPOSTS.

WHEN preparing composts for softwooded plants we have to consider that the majority of plants which come under this definition are shaken out annually, and therefore do not need a compost of so lasting a nature as those which are left undisturbed for several years. Cultivators have, therefore, much less difficulty in obtaining suitable soil for such plants as Primulas, Pelargoniums, and Fuchsias than they often experience when preparing composts for hardwooded plants and stove and greenhouse shrubs. Turfy loam is by no means indispensable to success in the growth of many species of softwooded plants; but where it can be obtained it is decidedly preferable to any other soil, as it lasts a long time in a sweet wholesome condition, requires but little preparation, and is generally free from insects. Few plants, however, exhaust in one season the large amount of potash good turfy loam contains, so that when not easily procured it can be economised to a great extent by preserving the soil shaken away from plants which were potted in fresh loam, and by the addition of decaying animal and vegetable matter may be used again for hosts of quickly growing plants.

It is a capital plan at this time of the year to prepare a large heap of potting compost, and place it in a dry position. Where shed room is scarce a heap can be placed in a sheltered or dry position in the open air, and be covered with boards or thatched hurdles. Where turfy loam can be spared let the proportions consist of two parts loam to one of leaf soil and half a part spent Mushroom bed manure or well decayed manure, with a 5-inch potful of soot to each barrowful of the compost. When good loam cannot be had ordinary garden soil, with proper preparation, will often produce results equally good, although it must not be forgotten that feeding and watering should then have every attention, as the plants are more largely dependent upon fertilisers applied while growth is taking place, and the soil is more prone to become sodden than is the case when maiden loam is used. If the soil used is obtained from a kitchen garden where repeated dressings of manure have been given it is often rich enough in animal manures, but requires to be made sweet and open. In such instances add one part leaf soil to three of garden soil, with a little wood ashes and lime rubbish; but when the soil used is of a poorer nature use one part of well-decayed manure, instead of using three parts of garden soil, the other ingredients being used in the same proportions. If old potting soil is the best material that can be had, employ fresh horse manure at the rate of one part to two of the old soil and half a part wood ashes, and a 6-inch potful of bonemeal to each barrowful of the other ingredients.

In all of the above mixtures use a proportionate quantity of soot. Wood ashes are extremely valuable for mixing with potting soils, as they abound in potash compounds, and may be used in the largest proportions when the bulk of soil mixed with them consists of decaying animal and vegetable matter; in such cases the wood ashes not only tend to make the compost open and sweet, but also insures the production of plenty of woody tissues in the plants grown in it. On the other hand, if used too largely in soils not rich in decaying matter, the wood ashes tend to produce a hard wiry growth, which becomes prematurely stunted on account of an insufficient supply of nitrogenous matter. Having now described a variety of materials which may be formed into excellent potting composts, a few words on the manner of mixing may be useful, as it is important to have the various ingredients thoroughly incorporated. This is best done where large quantities have to be mixed by forming a conical shaped heap, throwing each shovelful on the top, so that it rolls down the cone on all sides. The mixing is thus performed in an easy and thoroughly efficient manner. I ought to have stated that a little sharp sand should be added before mixing, and it is important that the sand used should be sharp. It is far better to use road sand than the soft white sand one often sees, which is only adapted for propagating purposes. Those within easy reach of the coast will have no difficulty in obtaining sea sand, which is inexpensive and quite satisfactory, although at one time cultivators were somewhat dubious about using it.

When a heap of compost is mixed as above described at the beginning of the potting season it proves a great saving of labour, as there is nothing which, to use a common expression, makes such "ducks and drakes" of time as to be continually mixing small quantities of soil, or doing other work on the piecemeal system, and should if possible be avoided. I do not mean to imply that

when a heap of soil is mixed in the way above indicated it is exactly suitable for all kinds of softwooded plants, but it will be found well suited in its general composition, and it is an easy matter to add leaf soil, manure, or loam to adapt it to the requirements of whatever plants are in turn potted.

Capital soil for potting bedding plants in is that which, in garden parlance, is usually called "waste soil," but the term can scarcely be considered well chosen, seeing that the material it refers to is useful for so many purposes. This generally consists of soil shaken away from the roots of plants before they are consigned to the rubbish heap, or when they are repotted, the surface soil removed from Vine and Peach borders, and that which has been used for growing early vegetables in frames. These heterogeneous materials when mixed together form a compost quite rich enough for plants which, like those used for bedding purposes, only remain in the pots a few months, and it is one in which many classes of plants root with surprising freedom.—H. DUNKIN.

OPEN-AIR PEACHES.

It is worthy of note that Peach trees against warm walls are in a very promising condition, never more so, in fact, and that, too, in spite of the unfavourableness of last summer. With so much dull wet weather and a minimum amount of sunshine it would not have been very surprising if the wood had ripened badly, and failed to form many fruit buds, but as far as this district is concerned the reverse appears to be the case. Nor are we particularly favourably circumstanced for wood-ripening and early maturing of growth, the position being low, the climate somewhat moist, and the subsoil a very strong clay. If my experience, therefore, is any criterion, Peach trees if given the benefit of the shelter of a wall facing nearly or quite south will do well in most seasons, while there can be no question of the hardiness of the trees. If they will pass through such a winter as that of 1890 and 1891 apparently uninjured (and not one of ours was injured) they must be classed as being perfectly hardy, so that other causes have to be found for the great falling off in the culture of Peaches in the open air which took place or was at its lowest ebb twenty years ago, and from which state of affairs recovery is not yet complete.

To all appearances it was not so much the fault of the trees, or say from any inherent weakness of the same, that they failed, but it was rather that of the cultivator. When the rage for glazed houses set in, this being when more cheaply constructed houses came into vogue, nothing but these would do for Peaches and Nectarines, outside planting being greatly neglected accordingly. Now I find that if we fail to plant young trees frequently, one or two being added every season, the chances are a blank will soon occur, the older trees on our soil and in that of many other gardens being liable to lose limbs or die wholesale. Apparently there is no possibility of long preventing the latter unfortunate occurrence; at any rate I have tried a variety of preventive measures with but little success, and it is certain when no active steps whatever are taken to obviate the difficulty the trees will not last long. Ceasing to plant young trees in anticipation of failures of the older ones was therefore one great cause of the discredit under which Peaches laboured not many years ago, and if the planting of young trees be not persevered with, the walls will probably again be badly furnished.

That Peaches and, in a much less degree, Nectarines, pay well for good culture in most midland and southern districts there is no question. The fruit may be smaller and not so good in point of quality as those ripened under glass, but they are usually better coloured, and would often be much larger if the trees were not so recklessly overcropped. If suitable wall space, therefore, is at present well furnished with fruit trees other than Peaches, it is yet advisable to prepare a number of the latter to gradually take the place of worn-out old trees, or to supersede Plums, Cherries, and Pears, all of which usually succeed better in cooler positions, and can be transplanted even if of large size. If good-sized trees are wanted quickly, then plant that are known as trained trees; but if the grower can afford to wait a year or two longer for fruit, maidens would answer well. It must be added, though, that the latter ought not be left just as they are received from the nursery, or they will never make good trees; but they must be cut hard back, or to within 4 inches of the point of union of the scion with the stock, the best placed of the young shoots resulting being selected and laid in during the summer. Being pruned moderately hard during the following winter, sufficient young growths will be had to lay the foundation of a good tree. Trained trees being furnished with ten or twelve fairly well-ripened growths, these latter before active growth commences should each be shortened to about one-half of their

lengths, and two young shoots being eventually reserved and laid in from each, handsome and fruitful trees would probably be prepared for the year 1893.

This may seem too good to be true; but there are, in the gardens under my charge, nearly a dozen quite young trees, which were planted as maidens two years ago, that are now well furnished with good bearing wood. A crop will be taken from them, partly to test the varieties, but principally to prevent these growing too rankly, cropping young trees in this case answering our purpose better than having to be constantly root-pruning. A tree of Waterloo, planted as a maiden three years ago, now occupies a wall space 8 feet by 9 feet, and is beautifully furnished with bearing wood.

It is my belief that Peach trees are often kept too dry at the roots, this being the cause of so much weakly growth being formed, the trees rapidly degenerating accordingly. In spite of the heavy rainfall and a thick mulching of manure, our trees did not grow too strongly, and, as before stated, they never presented a more promising appearance. When trees grow much too rankly to be fruitful this is largely due to their being planted in a rich border, deep root action also contributing to much the same result. If the young trees are planted in a compost consisting of turfy loam, to which old mortar rubbish and burnt earth and wood ashes are freely added, being also kept uniformly moist at the roots, there is not much likelihood of their forming other than firm, fruitful wood. Solid manures are undesirable, unless for the purpose of mulching trees in full bearing.

The cultivator who means succeeding with Peaches must not rest contented with having planted the trees properly, as it will be found that the most successful growers attach, and rightly so, very much importance to the necessity for keeping the roots well up to the surface of the border. Completely undermining strong young trees, so as to cleanly cut through all deeply running roots, is a good preventive of an injuriously deep root action, but is not enough. When the trees are in full bearing it is advisable to undermine and cut through deep running roots on one side of the tree in one season, and to treat the other half similarly in the following autumn or winter. This also gives a good opportunity of working in a little fresh loam, with a sprinkling of lime and wood ashes added; and if the trench is opened from 4 feet to 5 feet from the bole of the tree, no risks of overdoing these remedial measures will be run. Some of the roots disturbed are bound to be broken, but if they are cut across cleanly beyond the broken parts, the wounds will heal quickly, and the pruning be the means of promoting the formation of many more fibres. Those long naked roots are of little service, the most profitable trees being invariably found to have abundance of root fibres near the surface of the border, and not far from their stems. In the autumn, or a short time before the leaves change colour and drop, is perhaps the best time to either transplant or root-prune Peach trees, but there is no good reason why it should not be done any time before flowering or top growth commences. Last spring we moved two young trees in full flower, and the operation was both successful and beneficial. The least that can be done to strong or rather large old trees is to bare the roots nearest the surface, and either give a good top-dressing of fresh loam and good manure or a mulching of the latter only, in which case the old soil must be returned to the top of it, the better to keep it in a moist steadily decaying state. Mulchings thus treated answer the double purpose of attracting and feeding the roots, as well as conserving the moisture in the border.

It will have been noticed, probably, that I have only alluded incidentally to Nectarines, my reason for this being the comparative uncertainty of this fruit in the open air. Lord Napier would appear to be the only variety that can be depended upon to ripen properly, and even this sears and cracks badly in many localities. Other varieties are more fickle, the fruit in the majority of cases cracking or shrivelling badly, only ripening fairly well in the most favourable seasons. Much of this is due to the smoothness of their skins, the downy Peach not being nearly so susceptible of injury from too much moisture. At the same time those who have plenty of suitable wall space may well give some of the best Nectarines a trial. There are few or no varieties of Peaches that fail to do well in the open, those of American origin being among the best that can be planted.—W. IGGULDEN, *Somerset*.

PEACOCK IRISES.

VIEUSSEUXIA, though not a large genus, includes among the nine or ten known species several of great beauty. Their attractions chiefly consist in the brilliancy of the tints distinguishing the neatly formed flowers, and though these are of moderate size, and, like most of their allies, somewhat transient, they deserve to rank amongst the most beautiful. By old writers most of the plants now included in this genus

were considered as Irises. Some have also been referred to the genus *Moræa*, but they were separated by Decandolle and ranked as a genus; and concerning this it is only to be regretted that he had not chosen a more euphonious name, and there is certainly some excuse if the advocates of English plant names prefer the simple but expressive popular designation "Peacock Irises." The principal botanical characters which separate the *Vieusseuxias* from the Irises and *Moræas* are the monadelphous stamens and the relatively small inner segments of the perianth. The latter gives a distinct appearance to the flowers, as they only seem to have three ovate petals, the other divisions in most cases being very diminutive.

The cultural requirements of these plants are not elaborate. Like the *Moræas*, they can be grown either in pots or out of doors in a warm, well-drained border; but in the majority of situations the former method will be found the most advantageous. Light sandy soil, with good drainage and abundant supplies of water while the plants are growing, are the chief points demanding attention.

Vieusseuxia glaucopis.—The woodcut (fig. 12) represents one of the best known and most abundant species—namely, the common Peacock



FIG. 12.—*VIEUSSEUXIA GLAUCOPIS*.

Iris, a variable but beautiful form first introduced from the Cape of Good Hope about a hundred years ago. It usually attains the height of 18 inches, producing its flowers in spring—April or May. The larger ovate or rounded segments of the perianth are pure white, having near the base in the centre a circular spot of rich deep blue, the resulting contrast being most striking. This form is more generally planted out than most of the others; but unless the soil is naturally light and thoroughly drained it is necessary to prepare a position. A compost of peat, leaf soil, and sand is suitable, or if very light turfy loam is obtainable it may be substituted for the peat.

V. pavonia.—A pretty species, but less attractive than *V. glaucopis*. It is the Peacock Iris of Linnæus, and one of the oldest known in this country, having appeared about the same time as the preceding. The perianth divisions are rounded, and of a deep orange hue, with a darker crescent near the base and a bright rose central blotch. It is a native of the Cape, and flowers in May and June.

V. tripetaloides.—A rare species both in its native habitat and in cultivation, but distinct in form, though less showy than some of its relatives. The lower portion or claw of the floral segments is very narrow, the blade or expanded portion being oval in outline, and pale blue with a yellow blotch at the base. The narrow claw gives the flower

a loose appearance, quite different from the other species. It is of slender habit and suggestive of some of the Xiphions. It flowers in spring, and was brought from the Cape to England about the commencement of the present century.

V. tricuspis.—This is one of the least attractive of the family, but is very free in growth and production of flowers. These are small, of dull white colour with a purplish blotch in the centre of the segments, and they are produced in May and June. It was first discovered by Thunberg at the Cape, and was introduced thence to Kew by Masson in 1776. A yellow variety of this, by some named *V. tricuspis lutea*, and by others *V. Bellendeni*, was obtained from the Cape twenty years later. The floral segments are small, rounded, yellow, with a few dark spots near the base.

V. villosa.—A handsome companion for *V. glaucopsis*, but even surpassing that in beauty. Fig. 14, page 96, shows a flower of the natural size, and well represents the form. The outer perianth segments are broadly oval, of a rich purple tint, with a central crescent of deep blue and a blotch of bright yellow at the base. The larger size of the flowers and the broader leaves render it one of the finest in the genus. It is a Cape species introduced nearly a hundred years since, and it succeeds well outside in suitable positions similar to that noted as required by *V. glaucopsis*. The two forms figured are those especially worth cultivation, and if a third is needed, *V. pavonia* should be selected.—C.

ROCK GARDENS.

AMONG the many changes which English gardens have undergone during the past twenty years, consequent upon the downfall of the bedding-out system, has been the making of rock gardens for the especial purpose of growing in greater perfection some of the charming flowers of Alpine regions. Some of these on a grand scale, others less pretentious it has been my good fortune to visit. The charming one at Messrs. Backhouse at York, which, taking it all in all, is, I think, the most perfect one I have ever seen. I have seen, too, the world famed garden of the Rev. H. Ewbank, at St. John's Vicarage, Ryde. I have also visited the grand ones at Floore, near Weedon, when Sir E. Loder lived there (by-the-by, I am told he is making another at his present residence at Leonardslee, near Horsham). I have also seen what I ventured to designate as the Broxbourne Alps at Messrs. Paul & Son, and of course Mr. Ware's of Tottenham, and Mr. G. F. Wilson's at Weybridge, and I have seen many smaller ones in private gardens. There are rockeries and rockeries; there are rockeries which are in good taste, and rockeries which are the reverse. I call to mind one which I once described in the pages of this Journal (a description for which I was considerably roughly handled), where a high mound in front of the drawing-room windows was built up to represent a mountain top. On the uppermost ridge were small Pine trees, and the interstices of the rocks were filled in mostly, *horresco referens*, with scarlet Geraniums, yellow Calceolarias, and Pyrethrum, but I hope that such a monstrosity is rare. One of the most charming that I have seen was—alas! that I should have to use the past tense—that of my friend Mr. W. O. Hammond of St. Albans Court, near Wingham in Kent. He had been fired with enthusiasm on one of his excursions in the Pyrenees, and had a most delightful rockery formed out of a quarry, and for years it was very delightful; but as he has been obliged to give up mountaineering the poor rock garden has fared badly, and may now be regarded as a thing of the past. There is yet one which I hope to see this spring, that of Mr. H. Selfe Leonard of Hilmanbury, Godalming, of which I hear much, and when I understand one item of it is 600 or 700 plants of *Saxifraga longifolia vera* I expect to be considerably enlightened. Nor must I omit that of the Rev. C. Wolley Dod of Edge Hall, Malpas, although I think his herbaceous garden is more noticeable than his rock garden.

But my object in writing is not to display these great lights, but rather it may be to help forward those who, like myself, straitened by the amount of ground they have at their disposal, and equally so by the amount of cash they have to expend upon it, have to keep near shore and not attempt great things.

In considering the various rockeries I have seen I have, I think, noted two kinds—one in which the plants themselves were the main, indeed, I may say, the sole consideration, and where the general appearance of the rockery was not considered. On the other hand, there are those where a good deal of consideration is given to the plants, but the general picturesqueness of the rock garden is also made a point of importance. Probably had I seen all these various specimens of rock gardening before I made my own I might have made it somewhat different, but as it has done fairly well I may by detailing my method of procedure be a help to others.

The first requisite for making a rockery, the rocks (or stones) themselves is a point on which I had some considerable difficulty. some parts of this county we have large tracts (such as at

Tunbridge Wells) of sandstone, which I look upon as the best material wherewith to make the foundations of a rockery; but although my friend Mr. Hammond obtained his from there at a great expense I was unable to do so, and had to content myself with Kentish rag, a sort of bastard limestone, very unsuitable from its unpicturesque character for the purpose. Moreover, it is easily affected by frost, and has a most unpleasant way of crumbling to pieces when the frost has been severe. There was in this parish an old cottage which had been roughly built many years ago with this stone, and had been pulled down. I obtained permission to use these, and as many of them were of good size, they came in capitally for my purpose. As my space was very limited I had no choice of situation. Most people say that the rockery should run east and west, and that an eastern aspect is that in which most rock plants rejoice; indeed, Mr. Wolley Dod, a high authority on such matters, says that a west aspect is the worst one for alpine plants. I had no choice, and so my rockery runs north and south. Of course there is an east aspect, but the principal one is west, while a turn at each end gives a north and south aspect also, the former of these being indispensable for plants such as *Ramondia pyrenaica*. My principal rockery is about 100 feet long, and from 5 to 6 feet wide. It is rather flatter than I should make it if I had to make it over again. It is not on the level, but runs down a slope in the garden, and forms at one part a hollow, where a good deal of water collects, and where I have been enabled to grow successfully some plants which like a wet and peaty soil. Having marked out the place I then placed the stones in such positions as I thought would suit the plants, and leaving some places which acted as pockets, where the more dwarf-growing species might have a place to themselves.

With regard to the soil with which the spaces between the stones are to be filled, my experience is that a good sound sandy loam suits most plants very well. There are some which will require special soil for themselves. Thus in the case of the *Dianthus* it will be well to have a spot filled in with leaf mould as recommended by M. Henri Correvon in his work on Alpine plants, while some others, like the American Orchids, *Trilliums*, *Parnassias*, like a peaty moist soil; on the other hand some of the *Gentians*, notably *G. verna*, are lime-loving plants, and it will be well to see that where they are planted there should be either limestone or chalk. But there is a large number of plants well suited for the rockery which do not seem to be over-particular, and will adapt themselves to any situation or soil; thus the beautiful *Gentiana acaulis*, or *Gentianella* as it is commonly called, will flourish in the most varied situations. I know a garden in East Kent where it is used as a broad edging round all the flower beds, and when in bloom is a sight to behold, and the soil there is a stiff tenacious loam almost approaching to clay. I know another garden where it does almost equally well, where the soil is a rich alluvium which has for generations been enriched by manure, while I can bear witness to its doing well in a friable loam. We have in our herbaceous borders a plant which by its name, *Gypsophila*, shows that it is a lime-loving plant, yet it flourishes in the most varied soils, and in them all alike forms its large fleshy roots; so that, all things considered, I think this light loam is almost as good a material as can be used, it can also be easily added to.

Experience will be probably the best teacher for us (I have found it so in my own case) as to what plants we shall attempt to grow, and in our rockeries there are some which we very much like to try. We have seen them sometimes, and we ask ourselves why can't we do them? Well we try, and the result is disappointing. In my early days I tried *Eritrichium nanum*; it was a foolish thing to attempt after Mr. Backhouse had told me he had utterly failed to establish it. There is *Lewisia rediviva*, quaint and pretty. But, alas! as a result of a similar attempt he found a good deal of the *Lewisia* but very little of the *rediviva*. Then, again, the charming little *Primula minima* has rudely resisted all my attempts to give it a hospitable reception, and yet what a charming little gem it is. There are three other plants which is well to avoid for the very opposite reason, that they are too vigorous in their mode of growth. Thus in an evil hour I put a plant of that charming dwarf Rose, *Rosa pyrenaica*, on a part of my rockery. It was very delightful for a year or two, but after that it became a perfect nuisance. Its hard underground suckers inserted themselves everywhere. I cut them away, but they reappeared, and I had nothing left for me but to take up all that part of my rockery and get it all out if I could. Well, I pretty well succeeded, but then a comical thing happened. In the place from which I had taken it I placed a plant of that delightful (when you can get it) Californian plant *Zauschneria californica*, but this was as bad as the other. Although very softwooded, and easier to manage, it spread all over the place, intruded itself where it was not wanted. In one respect it was worse than its predecessor, for whereas that did flower, I have

never, except in the Jubilee year, had a flower on the Californian plant. I have tried it in various places, and now mean to get rid of it altogether. Where space is of no consequence it may be grown, but in a small garden I should not advise its being tried. Another plant about which great care is needed is *Dianthus deltoideus*. It has creeping underground stems, and comes up everywhere near where the original plant has been placed. It is, however, easily dealt with and got rid of except in those places where it may be allowed to display its pretty flowers. So, again, *Anemone sylvestris* is a great sinner in this respect, and as its foliage is strong and persistent, it becomes a nuisance, and I have had great difficulty in getting rid of it, except at the back part of my rockery. *Anemone apennina* also spreads itself everywhere, but then it is small in foliage, and the foliage dies away so completely, and the flowers are so lovely, that it may well be allowed to increase itself as it likes best, and other plants grow up well amongst it, and thus when it has died down bare spaces are not left, and its advent in spring forms one of the charms of the rockery. —D., Deal.

(To be continued.)

GLOXINIAS AND THEIR CULTURE.

AT the present season of the year all lovers of these beautiful flowering plants will be directing their thoughts to their cultivation during the season, whilst, on the other hand, many may be making the first start, and it is to the latter more especially that I offer the following remarks. The claims of these charming flowers have been prominently urged in the columns of the Journal, and it seems as if nothing new can be said in addition to what has already been recorded; but we must not lose sight of the numberless changes which are ever taking place in the horticultural world, of young hands who are taking the place of older ones. Some are perhaps taking the Journal for the first time, and have missed the previous articles treating on Gloxinias, and of the great number of enthusiastic amateurs some may have tried to cultivate the Gloxinia, but have failed.

The three best known types of the Gloxinia are the drooping, the erect flowering, and the spotted varieties. They are all beautiful, but the two latter seem to find most favour with the majority of cultivators. I have never found the spotted varieties possess the robust constitution of the others, but if carefully treated, the delightful hues and wealth of colouring fully compensate for any defect in the matter of habit. For ordinary purposes a mixed packet of seed will prove ample, and many colours may be anticipated; but for those whose tastes are more fastidious, varieties are offered in separate shades, and many firms offer excellent named varieties, but these may be relegated more to those possessing ample wealth, and smaller growers may rest assured that a packet of seed from a good firm will give entire satisfaction.

Gloxinias may be raised from seeds or by cuttings of the stems or leaves. If from seed, the present is a good time to make a first sowing. Clean pots or pans, also clean drainage, are indispensable factors to successful cultivation. Half fill the pot or pan with crocks, over which place a thin layer of sweet sphagnum moss, which prevents any of the compost working its way into the drainage. On this place the rougher portions of the compost, which should consist of some good sandy soil, leaf mould, and sharp sand, with some charcoal broken up small. Fill the pot nearly level, the surface being made smooth. Care must be taken in sowing the seeds, which are very small, and after sowing, cover very slightly, and water through a very fine rose. A temperature of from 60° to 75° will be suitable, and the pots should be shaded. As the seedlings appear they may be gradually inured to the light, and watered with the utmost care, or damp will play sad havoc amongst them. Seed can also be sown in August, and the seedlings should then be kept growing through the winter.

When large enough they can be placed in thumb pots, or if pots are not available they may be pricked into pans or boxes, the same compost answering well for this shift. Shade the young plants from strong sunshine, and grow them in the same temperature as recommended for the seed, keeping them well supplied with water when fairly established. When the pots become filled with roots remove into larger ones, using a compost of equal parts peat and loam, with sand, charcoal, and a little crushed bone meal. As the plants gain strength an occasional watering with weak soot water or liquid manure will be found of great benefit. They should be kept slightly shaded and air must be cautiously admitted if the plants are to be subjected to a rather lower temperature when in flower. Seedlings (from seed sown now) if carefully treated, will make a good display during August, September, and October. If there are any particularly striking varieties warranting more

extensive cultivation, matured leaf cuttings, with a small portion of the stem attached, may be inserted in pots or pans of sandy soil, and if kept rather close, serviceable little roots will be formed, which will be useful for the following season. They may also be propagated from cuttings, but the two former are sufficient for most purposes. As the flowers begin to fade water should be gradually withheld until the leaves die down, when the pots may be stored under the stages, an intermediate temperature suiting very well. The following season the plants should be shaken out as soon as there are signs of growth, and a similar treatment given them as before recommended, only larger pots will be required. For the first season pots from 4 to 5 inches will be sufficient, and for the second from 5 to 8 inches. Insects are not troublesome if the plants are grown without a check.—R. P. R.

LAURELS.

OF all shrubs under cultivation at present none are so popular as the common and the Portugal Laurels. For various reasons the common Laurel (*Cerasus laurocerasus*) has been often condemned as unworthy of the attention it receives at the hands of planters. It is subject to periodical destruction to the ground line on the recurrence of hard frosts, such as those of 1879, 1860, and others. It is of a coarse-growing semi-procumbent habit, which detracts very much from its general usefulness. But even with these peculiarities the common Laurel fills a position for which it is impossible to find another shrub as a substitute. The qualities which make it so popular comprise rapidity of growth and adaptability for almost any soils. The fact is, though I have no decided preference for it, and indeed consider it to be often planted in positions it is unfitted for, it remains one of the few plants which holds its own despite the neglect to which it is too often subjected.

The great merit of this Laurel consists in its adaptability as a screen where taller-growing plants would be out of place, and for covering banks under the shade of trees, which no other shrub will cover so quickly or perhaps so well. As our own experience is as helpful as any general statement would be, I may shortly state what I have done with it. When I entered on charge here the shrubberies were rather wild; pruning, in fact, was discouraged. However, I obtained permission to proceed somewhat tentatively, and in due time the bad summers and hard winters, culminating in that of 1880, were a great help. The plants had originally been planted much too closely; the branches were in consequence entwined in confusion, bare of leaves for many feet from the ground upwards, and the foliage confined to a few feet in length on the higher portions of the bushes. They fell a ready prey to frost. Some were cut over to the ground, others being left with a few feet of old stem; but in every case the best growth proceeded from the neck of the plants, some indeed from beneath the soil. Some plants which were not cut-in have been a source of trouble ever since, requiring annual cutting out of dead wood; but we are now getting pretty well rid of all the material which produces the latter, and have plenty of root growths to fill up.

After the stems were cut in I determined they should not again get into the like tangle, and ever since the stronger growths have been cut back once in two years, branches facing walks or lawns being trimmed with a knife once a year. But the branches as they increased in length began to assume their natural habit, and the alternative of either removing a certain number of plants, or of cutting them out altogether, had to be faced. Having use for any number the former was chosen, and every season for some years a certain number are removed and planted in other parts of the grounds. Those that remain are now large spreading bushes, and I believe will stand with less damage as hard a frost as that which crippled them so much a dozen years ago. The removal of the supernumeraries was at first undertaken with some hesitation, but by cutting round each plant in spring a crop of young roots with a ball of soil was secured, and they have been transplanted, even in midsummer, not only with perfect safety, but in a short time it was impossible to see that they had been removed at all. This season I hope to cut back the main central shoots of some of the larger plants, and so secure a crop of young growths from the middle of each bush; they are so well furnished all round that the entire middle portion of the bush might be removed without being noticed afterwards. I made a hedge of some of the plants, and as they were of a large size it was an efficient screen as soon as planted. These are of course kept cut in closely.

Of the Colchic Laurel I have had no experience as to whether it is frost-proof. It is said to be the hardiest form. As a plant I do not think it is so handsome. About ten years ago I planted some of the *rotundifolia* variety. It is not of nearly so rapid a growth as the common one, but it is of a sturdy, compact, and

spreading habit, not requiring pruning, and forms a much more handsome bush. We have also a variegated plant of the common Laurel, but it is not a desirable shrub to cultivate.

Of the Portugal Laurel (*C. lusitanica*) we have many old and handsome specimens. In addition to its merit as an evergreen it possesses the further good quality of being one of our best hardy flowering shrubs. In most seasons the larger specimens here are masses of white flowers at the period of blossoming, which is towards the end of June. These particular plants are doubtless aged, for they have all trunks like forest trees, while some of them bear marks of having been cut at a distant period. Whether that having been necessary on account of frostbite or from some other reason I do not know. This species is said to be very hardy, and Loudon quotes from Miller that in 1740, when almost every other evergreen tree and shrub was severely pinched, the Portugal Laurels retained their verdure. But Loudon says that in 1837-8 it was severely hurt in all low moist situations in the climate of London; and in the north of England and on the borders of Scotland generally in 1879-80 it was reported among the shrubs killed to the ground. Eslington Park, Alnwick Castle Park, and Ford Castle, in Northumberland; Stevenson, in East Lothian; Blackadder House and Thirlstane Castle, in Berwickshire; Floors Castle in Roxburgh, also in Selkirkshire, are examples, from the proceedings of the Berwickshire Naturalists' Club, of places in which it is stated to be either cut down or killed outright. Hardiness is, indeed, comparative. Here none of the numerous plants were damaged in the least, though we registered — zero.

No doubt the proper method of treating the Portugal Laurel is as a large specimen, and wherever it is planted it ought to be allowed full room for development. If other shrubs are near to it and in any way interfering with its advancement they ought either to be removed, or, if wanted to remain, then the stem of the Laurel should be trimmed and made to form a head. Little or no pruning is required, merely an over-luxuriant shoot trimmed in or cut out in order to secure symmetry. A method of inducing a speedier growth will be found in judiciously thinning the more weakly growths. At the same time it is to be observed that Portugal Laurels being as a rule raised from seeds, plants vary considerably in habit of growth. We find this an excellent substitute for Orange trees. They do very well in tubs of slate, but latterly, in order to save labour and at the same time to help the plants, we have planted the roots in the ground, and merely employed the tubs as a make-believe, a stout tube of iron protecting the stems from the soil with which the tubs are filled, and in which various creeping flowers are planted.

We have a very pretty variety of the above under the name of "myrtifolia." Whether this ought not rather to be *microfolium* I do not know. The foliage is one-third smaller, the growth is much shorter, and habit more compact. The foliage is perhaps not so bright in the green, and the young shoots are of a duller hue than in the type.

The Portugal Laurel does not transplant in a large size with the same certainty as the common Laurel, but with due care I have shifted very old cut-down plants with success. I find this species does not form fibrous roots so readily as the other, but by leaving them for two years after the thick roots have been cut first-rate balls of fibrous roots are secured, and the plants go on without a check. The Portugal is not a good "wind" shrub; where exposed to blizzards they are invariably much damaged. The common Laurel stands a cutting wind much better, but neither are of value for positions exposed to easterly or north winds. Old plants are somewhat unsafe to cut hard back.

The above, of course, are not botanically Laurels at all. The plant under noted belongs to the true Laurels. The Sweet Bay, or *Laurus nobilis*, is one of these semi-hardy shrubs which, where they do no more than exist, are objects of much care and bother. Here the species does very well. Eleven years ago all the plants were so much damaged as to require cutting over, but some have done so well that the largest is now a thriving bush 40 feet round by 12 feet high. It requires to be only sparingly grown, and does best as an isolated specimen, and then must be well treated in order to secure a good plant. Those I have tried in mixed shrubberies make very little growth.

Daphne Laureola is commonly known as the Spurge Laurel. It is not of very common occurrence in pleasure grounds; though not of any great beauty, it is nevertheless well worth a place in the mixed shrubbery, or even, as we have it, as an isolated specimen on a lawn. It is a low spreading bush, and increases in size very slowly. The leaves are of a dark green and very glossy. On our solitary plants are a few shoots with foliage very prettily variegated. I do not know if this is in cultivation. The flowers open in early spring, and are light green and very sweet scented. We occasionally use them for glasses, cutting, as is necessary, the whorl-like growth of leaves along with the flowers. I have never

had occasion to lift a Spurge Laurel, but I imagine it would be safe to cut round the roots a while before doing so. The Sweet Bay I have had no difficulty with.—B.

ADIANTUM CUNEATUM.

THERE have been several attempts to supersede this old favourite, but so far the various introductions have proved failures, not only for yielding fronds for the market, but for general decoration on a large scale. *A. gracillimum* is certainly light and graceful in bouquets, but for all purposes there is no comparison between the two Ferns.

For conservatory decoration where the temperature does not fall at night below 45° *A. cuneatum* is the most useful Fern that can be grown. It will retain its fronds throughout the whole year, and commence throwing up fresh ones early in the season. If the plants can be removed at the present time, and given a temperature of 50° to 55°, they will commence growing at once, when the old fronds may either be removed or cut clean away if the plants are placed in heat. We certainly prefer the latter, so that the new fronds have every chance of progressing without injury either by the removal of the old fronds or the crowding of the younger fronds. It may here be pointed out that although this Fern is at home in almost any position, they cannot endure the confined moist atmosphere of the stove proper. In these positions they soon produce weak puny crowns and small delicate fronds that fade in a few minutes after they are removed from the plants.

When these plants are grown for ordinary decoration and cutting, they can be kept in a healthy vigorous condition for many years. If grown solely for yielding fronds in a cut state for the market, and every one is removed as it is developed, the plants are not many years before they become exhausted or partially so. The crowns become weak and crowded, the fronds smaller and are thrown up less quickly. If given a year's rest and no fronds are removed the plants will recruit themselves. But this system does not pay, and, therefore, they must give place to young plants full of health and vigour.

It is a good plan to raise some seedlings annually, and this is by no means difficult either when the spores are sown in boxes or allowed to sow themselves. Failure often results from sowing the spores on a fine even surface. When sown in pans or boxes the surface on which they are sown should be left moderately rough; they germinate freely on the surface of cocoa-nut fibre refuse. An easy method is to place about August pieces of turf amongst the pots, and by this time of the year the sods will be green. From these in twelve months will be obtained healthy young plants, well established in 2-inch pots. Early the second season they are placed into 4-inch pots, and at the end of June or early the following month into 6-inch pots. By the end of the year the Ferns will average 14 or 15 inches high and 1 foot in diameter. These yield abundant fronds during the months of January and February, when as a rule they are most scarce. If these are cut clean over the following March and allowed to start steadily into growth until the roots are thoroughly active, the plants may be transferred into 9-inch pots. In this size they will yield large fronds and in considerable quantity throughout the season. Progress seems slow from the time the spores are sown until the young Ferns are well rooted in small pots, after that time their progress is rapid.

The rate of progress depends largely upon the methods of potting adopted, and the supply of water to the roots. In the first case they should not become root-bound or approaching that condition in the small pots. When left too long, and to save trouble the plants are transferred into 5-inch pots, and given a little too much water, they frequently fail. Time is gained by giving them an intermediate shift between the small pots and the 6-inch size. It is in their early stages and after repotting that careful watering is needed. From the time the young plants are first placed into pots until they are given 9-inch size the roots should never be disturbed. The plants should be potted with their roots entire, the crocks only being removed, and we are not particular about these. The rate of progress is impeded by the system, too common even at the present time, of liberating the roots as it is termed. The old soil cannot be worked from amongst the roots without seriously injuring them. It is a cruel system, and proves a severe root-pruning to the plants, which practically defeats the object the cultivator has in view.

The plants will stand in the 9-inch pots until they have been cut over the second season. During the last season's growth, if the plants are needed for home decoration, and a dark green healthy appearance is needed, soot water in a clear state will assist them wonderfully. It may be pointed out that shade will also result in darker foliage. If, on the other hand, the fronds are grown for the market soot water should not be given, but

some artificial manure applied to the surface of the soil two or three times during the season. Light coloured fronds that will last well when cut are most appreciated in the market, and nothing must be given the plants that tends to impart to the fronds a deep shade of green. They must also be grown under the influence of a fair amount of air and abundance of light. Moderate shade is necessary during hot bright weather, and this, where practicable, we prefer of a moveable nature.

The time arrives, however, when the plants in 9-inch pots must be repotted, and two systems practically are open to the cultivator if he does not decide to place the plants into 11-inch pots. This, for several reasons, is not advisable, and need not be entered into. It remains, then, to either reduce the roots which we have condemned in the early stages of the plant's growth, and disapprove of after they have received their final shift. The other is to split them in two, and place each portion into 9-inch pots. By this method the plants quickly recover, and as soon as they commence growth they throw up saleable fronds at once, and by the end of the season they are grand plants with the pots fairly full of roots. When the roots are raked out to reduce the ball so as to place them back again in the same size pot, they are so seriously checked that the first fronds are small and puny. Too small for sale, and being close together, they often damp and need removing with care after the next growths commence pushing up. Half the season is thus gone before the plants have recovered from the mutilation their roots received. We do not tamper long with old plants; once they decline in vigour they are either conveyed to the rubbish heap or split up at once into four or five, or more, established in 5-inch pots, and sold in the market for what they will fetch.

This *Adiantum* is not particular about soil, it will grow in almost anything. If leaf mould is plentiful it may form half of the soil and fibry loam the remaining half, with the addition of sand. They will grow well, but not so quickly in good loam and sand with lime rubbish added. The last they certainly like whatever the soil may be composed of. They will grow perhaps most rapidly in all leaf mould, sand, and lime rubbish, but the fronds have not the same solidity as when grown in the first mixture.

After potting the plants need careful watering; if the soil is kept on the wet side at first they rarely do well after. If the roots are reduced and the soil wet about them from the first they seldom do satisfactorily. When they are started into growth they should never become dry, not even during the period that elapses between cutting over the plants and starting them into growth again. An intermediate temperature, on the whole, suits these plants best, and during the summer months they need little or no artificial heat.

If these plants are turned out it will be observed that the active or growing portion of the root starts afresh from the end of each root. If the balls are reduced these are broken off and fresh ones have to be formed, thus the plant is deprived of the means of taking up the requisite food supplies to develop the first fronds. Well developed fronds need not be expected until after fresh roots have been formed.—O. M. A.

TABLE PLANTS.

(Concluded from page 8.).

FERNS.

THE variegated *Pterises* are different in their habit of growth, the fronds being much larger and the pinnæ broader, and some kinds have both fertile and barren fronds. *Pteris cretica albo-lineata* is one of the most popular in this class, and when young and growing in a 3 or 4-inch pot a small bushy plant with its distinct variegation is very attractive for a table. This Fern is an instance of the two distinct kinds of fronds. The fertile ones, which rise higher and grow more erect than the barren fronds, have narrower and longer pinnæ, the latter, however, being the most distinctly variegated and the most freely produced. *Pteris cretica Mayi* is a similar variety, very prettily variegated with green and creamy white. It is more compact and shorter in habit, making a very handsome and useful table plant in small pots. *Pteris argyrea*, a bold growing and beautiful Fern, having a broad centre of white down the centre of each pinnæ, which gives it a very distinct appearance, is not quite so useful in a small pot as some of the other *Pterises*, but in a 5-inch pot it makes an exceedingly effective table plant.

All the *Pterises* mentioned do well in a greenhouse, where they should be making new growth, accommodating them with a moist, partly shaded position, as in such places cultivation is easier, and less frequent waterings are required. When wanted for table decoration, however, *Pterises*, and not only them but other Ferns of the various classes as well, are rendered less susceptible to injury

when, on growth becoming somewhat complete and partly matured, they are subjected to more air and light, which enables them to withstand some of the untoward influences they may possibly have to endure. Though good preparation for the purpose in question is never thrown away upon Ferns, yet many of the *Pterises* are among the best Ferns which require the least amount of preparation. If kept in rooms for any length of time, much depends upon the attention afterwards bestowed upon them. The most important point is adequate moisture at the root, and that, too, sustained as regularly as possible. To well-prepared plants of *Pterises*, and also many other Ferns, dryness at the roots is more fatal than dryness in the atmosphere. Also the smaller the pot the more difficult it is to preserve the necessary moisture, except in cool rooms.

The *Cyrtomiums* growing in 3 to 5-inch pots are pretty and effective for tables. *C. falcatum* and *C. caryotidium* are both good. They are remarkable for the broad base and tapering point of each pinna, and the rich deep dark green colour of the fronds when in a healthy condition.

The well-known *Scolopendrium* (Hart's Tongue Fern) and its numerous varieties include many very suitable table plants. They are easily managed, requiring only ordinary soil, and plenty of water wherever grown. The best of the normal forms of *S. vulgare* and *S. vulgare crispum* are perhaps the best for table decoration. Pots 3 to 5 inches diameter are quite large enough for tables, except for special purposes.

The greenhouse and stove *Selaginellas* make excellent table plants, nearly all being suitable for this purpose, even those of mossy growth. *S. Martensi*, *S. Willdenovi*, and others of similar habit may be used with or in the place of Ferns, while fresh examples of such low spreading mossy species as *S. Kraussiana* and the golden and variegated form of the same, with the still dwarfer mossy sorts, such as *S. densa* and *S. Browni*, and the interesting kind known as *S. variabilis*, which in the summer changes its colour from a dark green in the morning to a white appearance of the foliage towards evening, with the beautiful glaucous green variety *S. coesia*, the last four enjoying stove treatment the best, all may be used to add to the attractions of other plants, as well as show to advantage their own.

PALMS.

Palms take an important place, and are always appreciated and admired when seen in good condition on a table. Naturally drooping and graceful in habit, few foliage plants give more pleasure and satisfaction either for temporary or permanent table decoration than these. Palms, as a rule, require some time before they develop their best characteristics. The first leaves are very elementary in form in many varieties, and it is not until the plants get into 5-inch pots that they assume their perfected shapes. Some, however, are more beautiful than others when in a small state. One of the most beautiful Palms from its earliest stages of growth is *Cocos Weddelliana*, but unfortunately for the great majority of people it requires cultivating in a stove, or at least in a higher temperature than that of an ordinary greenhouse. As a temporary table plant it has no superior among Palms either in a small or large state. Very similar to it, and requiring the same treatment, is *Geonoma gracilis*. Then there are the *Kentias*, exceedingly beautiful Palms, and much hardier than the preceding kinds. *K. Belmoreana* and *K. Forsteriana* are suitable in 5-inch pots.

Other suitable Palms growing either in stove or greenhouse, and effective in small pots from 3 to 5 inches are *Latania borbonica*, *Phoenix reclinata*, and *Seaforthia elegans*. Cleanliness of the foliage is an important point in the cultivation of Palms. Nothing spoils their appearance more than dirt on the leaves, except that small and destructive insect known as thrips, which is most troublesome when the plants are grown in too close and high a temperature.

Grevillea robusta, the "Australian Oak," growing well and freely in a greenhouse, makes a decidedly light and handsome table plant in a 4-inch pot, and particularly so when furnished well with its beautifully cut and divided foliage down to the rim of the pot. It may be grown from seed, which should be sown in a little heat in spring, repotting as required. It is subject to thrips in too high a temperature, or if allowed to become very dry in a greenhouse.

For the winter season no prettier plants are to be had for tables than good bushy plants in 5 and 6-inch pots of the berried *Solanum* or Winter Cherry. When well clothed with foliage and bright red berries they are handsome embellishments to any table, and with care in not keeping them too long in a dry parching atmosphere and seeing that the roots are always uniformly and healthily moist they will last for weeks in good condition. They do the best when planted out in the summer. The shoots should be pruned back well before they make much growth in the spring.

Araucaria excelsa, the Norfolk Island Pine, is also useful for tables at this and other seasons of the year when not more than a foot high in 5 and 6-inch pots.

The plants enumerated in these notes are mostly foliage plants, and such as are the most generally used. Flowering plants have not been mentioned, though there are many that may appropriately be used as temporary objects of decoration. All kinds of bulbs which are grown in moderate sized pots can during their season of flowering be employed; also *Deutzias*, *Cytisuses*, *Primulas*, *Cinerarias*, *Fuchsias*, *Petunias*, *Heliotropes*, *Marguerites*, *Cactuses*, *Orchids*, *Callas*, *Tuberous Begonias*, *Gloxinias*, small *Chrysanthemums*, *Azaleas* in small pots, and many others.—S.



EVENTS OF THE WEEK.—The Royal Horticultural Society's second Show this year will be held in the Drill Hall, James Street, Westminster, on Tuesday, February 9th. Besides the usual plants, flowers, and fruit to be submitted to the various Committees, a silver medal, presented by Messrs. Barr & Son, will be offered for the best collection of forced Daffodils, polyanthus varieties excluded. The usual lecture will not take place in the afternoon owing to the annual general meeting of the Fellows being held in the Lindley Library, 117, Victoria Street, at 3 P.M., when the report for 1891 will be submitted, and officers for the current year elected. The annual dinner of the Horticultural Club will take place on Tuesday, February 9th, at six o'clock, in the Hotel Windsor, Victoria Street. The chair will be taken by Harry J. Veitch, Esq., Vice-Chairman of the Club. Dinner tickets, 5s. 6d. each, exclusive of wine. Mr. George Bunyard has arranged for a selection of vocal and instrumental music to be given during the evening.

— **THE WEATHER IN THE METROPOLITAN DISTRICT** has been variable during the past week, but generally mild with westerly winds and some rain. On Tuesday it was colder, and heavy showers of snow, sleet, and rain occurred during the morning.

— **THE WEATHER IN THE NORTH.**—The thaw which took place in Scotland a fortnight ago still continues with an occasional slight snap of frost in the mornings. Severe flooding took place in the streams in the north, causing considerable loss of property and live stock. Very high winds have prevailed since middle of last week, especially during the nights, accompanied with heavy rains.—B. D.

— **UNIVERSITY LECTURES AT SHEFFIELD.**—The Council of Firth College, Sheffield, have arranged a most interesting series of lectures on "Plant Life" to be delivered by Professor Denny, F.L.S., at Walkley Church Schools, commencing on Feb. 8th and continued each successive Monday evening at 8 o'clock until March 14th. Each lecture will be presided over by some prominent townsman interested in the social advancement of the people of the district. The syllabus of lectures is as follows:—Feb. 8th, "The World of Life;" Feb. 15th, "How Plants Feed;" Feb. 22nd, "Flowers and their Guests;" Feb. 29th, "Plants and their Offspring;" March 7th, "Some Flowerless Plants;" March 14th, "Parasitic Plants." Professor Denny is an interesting and popular lecturer, treating his subjects in a clear, plain manner, free from perplexing technicalities, and as his remarks will be amply illustrated with limelight views the lectures promise to be of a specially attractive nature. They will be entirely free, and it is hoped will prove so successful that the College authorities may be induced to repeat the effort with similar subjects on future occasions.—E. D. S.

— **WINCHESTER AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—At a meeting of the members of the above Association on the 28th January, Mr. J. Gardner, Twyford Lodge Gardens, read a paper on "The Vine and Its Cultivation Under Glass." Mr. Gardner treated the subject in an able and practical manner from the "eye to the finish of the fruit." A discussion followed, in which several of the members took part. Mr. Gardner staged some well-finished bunches of Lady Downe's Seedling in a plump condition. At the close of the meeting a hearty vote of thanks was accorded to Mr. Gardner.

— **THE PRESTON AND FULWOOD FLORAL AND HORTICULTURAL SOCIETY.**—The forty-fourth monthly meeting of the members and subscribers of the above Society will be held in the large room of the Legs of Man Hotel, Fishergate, Preston, on Saturday evening, February 6th, 1892, when Mr. Robert Frisby, gardener to Miss Ffarington, Worden Hall, will read a paper on "Hardy Herbaceous and Alpine Plants." Chair to be taken at 7.30.

— **PEAR HOUSES.**—Would Mr. Hunter supplement his interesting article by giving us the dates of gathering the different varieties, especially such late kinds as Easter Beurré, also whether General Todtleben proves eatable under glass? I notice no mention is made of Olivier de Serres, Nouvelle Fulvie, or Beurré Sterckmans, which latter is highly recommended for cold situations. Is there any reason for this omission from his list?—B. D. K.

— **DISEASED GOOSEBERRY.**—Reference to diseased branches of the Gooseberry at page 59 prompts me to state that I always attribute these enlargements on Gooseberry bushes to the flow of sap being arrested through the absence of leaf buds, these along with the blossoms being pecked by birds, as I do not find the malformations where the buds are entire. I also believe that similar formations exist in bark-bound trees, or in canes where the sap has not a free flow.—W. T.

— **WITH regard to the HARDINESS OF SEAKALE**, there is one variety of the Lily White that is fully equal to the ordinary purple tipped. I have myself grown this fully exposed for two years, and though I have had some thousands of plants out have lost none through frost. Some sent by me to a friend in the north of England have also withstood the climate there, which was very trying last year. My reasons for believing this variety to be different from the ordinary Lily White (which I have proved to my loss will not withstand a severe trial of frost) are, first, this peculiar hardihood before mentioned, and second, its superior excellence for the table.—T. H. CRASP, *Canford Manor, Wimborne*.

— **HYACINTH AND TULIP SHOW AT HAARLEM, APRIL 1892.**—Last autumn two show beds of Hyacinths were planted in Messrs. E. H. Krelage & Sons' nursery grounds at Haarlem, Holland, each containing over 600 bulbs, selected from the best and newest varieties. In April next these will afford a brilliant show, and a great attraction to English visitors on an Easter trip to Holland. A spacious tent is placed over these beds during the flowering period of the bulbs. Similar shows were held from 1880 to 1884, and again in 1889. Near these Hyacinth beds two large beds of early florists' Tulips have been planted, both single and double varieties. A separate tent is devoted to them.

— **THE KEW BULLETIN.**—Two appendices to this official serial have come to hand, one comprising an index to the whole of the issues from 1887 to 1891; the other consists of a list of seeds of hardy herbaceous plants, trees and shrubs that have been saved at Kew in the past year, and are "available for exchange with Colonial, Indian, and Foreign Botanic Gardens, as well as with regular correspondents of Kew. The seeds are only available in moderate quantity, and are not sold to the general public. It is desirable to add that no application, except from remote colonial possessions, can be received for seeds after the end of March." The list is a full one, filling twenty-seven closely printed pages in double columns, the names being arranged alphabetically.

— **IT is useful, in relation to meteorology, to note the date of commencement of various HARVEST OPERATIONS.** A French Abbé, M. Buvé, has recently suggested a consideration of the quantity of sugar produced in certain plants as a means of determining the meteorological elements concerned in this process. The physiology of the Sugar Beet is now pretty well known, and, according to M. Marié Davy, one may estimate pretty closely the yield of this plant by means of calculations from the heat and illumination to which it has been subject. Conversely, the Abbé points out, we might determine the heat and light received through the quantity of sugar produced. Fiscal operations, determining the yield of sugar, would facilitate the process. Again, it is suggested that the yield of honey might be considered in the same relation—the quantity of it in flowers depending greatly on sunshine, wind, rain, &c., while the state of the atmosphere favours or hinders the work of bees. The summers of 1889 and 1890 are cited as presenting a marked contrast with regard to both Beet sugar and honey, in correspondence with weather conditions; the earlier year was a highly prosperous one, the latter quite the opposite.—(*Nature*.)

— **GARDENING APPOINTMENTS.**—The following appointments have been made through Messrs. John Laing & Sons, Forest Hill Nurseries, S.E.:—Mr. Ledgerton, from Lord Brooke's garden, Easton Lodge, as head gardener to L. E. Powell, Esq., Brooklands, Lyndhurst, Hants; and Mr. J. Child as head gardener to W. S. Forster, Esq., Gore Court, Maidstone, Kent.

— **THE total RAINFALL AT CUCKFIELD, Sussex, for January was 0.59 inch, being 1.54 inch below the average. The heaviest fall was 0.16 inch on the 16th. Rain fell on ten days. The maximum temperature 51° on 29th, the minimum temperature 15° on the 10th; mean maximum 40°, mean minimum 29°, mean temperature 34.1°. Partial shade readings 3° above the average.**—B. I.

— **THE WEATHER AT RIPLEY, YORKS, DURING JANUARY.**—The first four days were very promising, bright and fine; between the 6th and 19th snow fell upon ten days, yielding when reduced to water 0.90 of an inch of rain. Frost occurred daily up to the 26th, the most severe being 22° on the 16th and 21° on 8th and 12th. Rain and snow fell upon twenty days; total fall for the month 1.62 inch; greatest daily fall 0.19 on 17th. Mean reading of the barometer for January, 29.91; mean maximum temperature, 39.8°; mean minimum temperature, 25.4°; mean temperature, 32.6°. The soil is very wet, and ground work is very backward in this district. So far as we can discern at present the frost has not done much damage. Increased sunshine is sadly needed.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

— **WE** are informed that Mr. GEORGE MACBAY, who was for forty years gardener to the late Richard Ellison, Esq., at Sudbrooke Holme, near Lincoln, died on the 21st ult. at Bilby, near Alford, Lincolnshire, in the seventy-sixth year of his age, and was interred in Alford Cemetery. He was a good all-round gardener, a good fruit and plant grower, and had many opportunities of showing his skill in the exhibition tent in the palmy days of the Lincoln Horticultural Society, when the names of Lumsden, Frisby, Harris, Jones, and others were familiar as competitors. He gave up his charge at Sudbrooke some years ago, and established a florist's business at Bilby, where he spent his last days, and was much respected by a large circle of friends. He was for forty years an annual subscriber of £1 ls. to the Gardeners' Royal Benevolent Institution.

— **MRS. ROBINSON KING CHRYSANTHEMUM.**—My only interest in the above is to show the true state of the case, and if others do not follow the example of Mr. Backhouse I shall feel it my duty to enlighten Mr. Lawton a little further later on; but for the present it will be sufficient to review the case of Mr. Backhouse, who admits he had a supply of cuttings in the autumn of 1890, and without doubt his companion also had all he could get. Supposing these were the only two instances of persons having, say, only a dozen cuttings each, it is quite sufficient to show the absurdity of the statement that the whole of the genuine stock is in the hands of one person for distribution. Since my last note I have been shown a statement of Mr. Blair, who says, "During the last season I have seen several spurious examples of Mrs. Robinson King exhibited," without mentioning a single instance where he saw them. On the contrary, we are told by Mr. Lawton that he visited several exhibitions and scanned many a stand without observing one example. I think these contradictory statements only go to show the division in the camp.—A. JONES, *Wavertree.*

— **LIVERPOOL HORTICULTURAL ASSOCIATION.**—The thirteenth annual meeting in connection with the above Association was held last Saturday evening in the lecture hall of the Free Public Library, William Brown Street, Liverpool. Owing to the Chairman, Mr. White, not being able to be present, Mr. T. E. Powell, Vice-Chairman, ably fulfilled the duties of Chairman. Mr. Bridge, the Secretary, read the Committee's report, which stated that the result of their work during the year had been a reverse of the previous year, as £86 had to be drawn from the balance of last year. It was with the deepest regret they had to mention the great loss of the late Mr. Fletcher Rogers, who was Hon. Treasurer for a number of years, and who always advocated the claims of the Society whenever an opportunity occurred. The attendance at the summer and autumn Shows was greatly below the average, and showed a financial decrease from the previous year of £56 on each Show. At the three exhibitions there were the average number of entries, the competition being very keen. The silver challenge vase, valued at 20 guineas, with £10 in cash, presented by Messrs. Ker & Son, Aigburth Nurseries, had provided a most successful class, and the wish was expressed that after the vase had been finally won some influential

firm in the City would keep up the standard set by Messrs. Ker. The members' meetings at the series of lectures had, considering the weather, been well attended. The accounts having been adopted, the Mayor of Liverpool, J. de Bels Adam, Esq., was elected President for the coming year, a number of influential gentlemen being added as Vice-Presidents of the Society. The selection of Hon. Treasurer was left to the Committee, Mr. Geo. Blackmore was re-appointed Sub-Treasurer. Regret was expressed that the courteous Secretary, Mr. E. Bridge, would not seek re-election, and by a substantial majority Mr. William Dickson, Chartered Accountant, 25, Victoria Street, Liverpool, was elected Secretary. The Chairman and Vice-Chairman were re-elected, Messrs. Kneale, Rainford, and Blomily were placed on the Committee, and the usual vote of thanks terminated the proceedings.

— **CIRENCESTER CHRYSANTHEMUM SOCIETY.**—The first annual general meeting of this Society was held at the Fleece Hotel, Cirencester, on Jan. 26th, when J. Rawlings, Esq., was voted to the chair. The Committee presented their report to the members, which was most satisfactory. The Show was held on the 11th and 12th of November last, the weather on the first day being most unfortunate. The second day was much more favourable, and about 2000 persons attended. There is a small balance in hand, and the second exhibition will be held on the 9th and 10th of November next. It was resolved to ask Lord Bathurst to become President for the coming year. Mr. J. Rawlings was elected Hon. Treasurer, and Mr. Sare as Secretary. It ought to be stated that it is owing in a great measure to Mr. Sare's labours and courtesy that the Show was such a success last November. It was suggested that a summer show should be held, but at present the Society cannot see its way in this matter. A Committee having been formed, the meeting separated, after thanking Messrs. J. Rawlings and Sare for their help.—COTSWOLD.

— **ROYAL HORTICULTURAL SOCIETY OF IRELAND.**—The annual general meeting of the Royal Horticultural Society of Ireland was held on Friday, January 22nd, in the Central Lecture Hall, Westmoreland Street, Dublin, under the presidency of the Duke of Leinster. In their report for 1891, compiled by the Secretary, Mr. W. P. North, which was read and adopted, the Council congratulated the members upon the very satisfactory improvement in the financial position of their Society. The year opened with a deficit of £194 13s. 6d., but against this can now be placed the sum of £127 11s. raised by special subscription. Another improved feature in the prospects of the Society is the large increase in the number of its members, no less than 154 new names having been added during the year. This increase is largely due to the action of the Council in suspending the rule which required an admission fee of 1 guinea in addition to the annual fee, and in consideration of so satisfactory a result the Council now propose to make their temporary arrangement permanent.

— **THE report continues:**—"The Council have great pleasure in calling very special attention to the greatly increased prize list offered in the new schedule, and especially to the almost new feature of challenge plates. For those thanks are due Messrs. W. Thomson & Sons of Galashiels, Messrs. T. Waterhouse & Co., an anonymous member of the Society, and to the horticultural seed trade of Dublin. To encourage the public interest in the growing of small fruits in Ireland the Council have introduced for the August Show a competition which is restricted to growers of fruit for market purposes. The thanks of the Society are cordially tendered to Lord Ardilaun, Right Hon. Ion Trant Hamilton, D.L.; John G. Nutting, Esq., J.P.; Hamilton Drummond, Esq.; and Messrs. W. Drummond & Sons for their prize donations. To Lord Iveagh, D.L., the Society is deeply indebted for so kindly giving the use of his grounds for the Exhibitions, and also to Mr. F. W. Moore, the Director of the Royal Botanic Gardens, Glasnevin, for the great interest he has taken in the Society."

— **THE THRIFTS.**—As a class of free-blooming perennials of neat habit the Thrifts, or Armerias, are possessed of much merit. All are tufted in growth, forming dense, hemispherical masses of evergreen foliage, while the flowers are borne in round heads on clean, long, wiry stems. Their season of blooming extends over most of the summer and early autumn, and in several of the varieties it is almost continuous throughout the growing season. Used in groups in mixed borders, in rockeries, or as edging plants, they are clean, and give a variety of foliage and flower. Soil is a matter of small importance to them, provided it is not excessively wet. *A. vulgaris*, the most common form,

makes broad, slowly spreading tufts of dark green linear foliage, and bears its purplish lilac flowers in loose heads on stems averaging 6 inches high. The variety *alba* is very desirable, with lighter coloured foliage and pure white flowers in more compact heads. The variety *Lauchiana* is its best coloured form, with clear, deep crimson flowers, and is a very constant bloomer when seen in masses. Some time since Herr Max Leichtlin, of Baden Baden, sent out seed of *A. undulata*, and it has proved an acquisition, with unusually long, narrow, undulated foliage, and bears pure white flowers in nodding heads on bending stems 10 to 12 inches long. It is an almost continuous bloomer with me and very hardy. *A. plantaginea*, with its broader foliage in dense rosettes, produces larger heads of pale rose or lilac flowers, often fading to white on stems often 18 inches long. The variety *formosa* is decidedly good, with showy, clear, deep pink flowers in large heads, and with us in a bed of fifty plants is never out of bloom from early June to killing frosts. Its long-stemmed habit and continuous blooming quality renders it especially valuable as a cut flower. *A. cephalotes*, though the largest flowered species, with us does not seem worthy of recommendation, owing to its objectionable habit of dying out the second or third year.

— THE WHORFLOWER, *MORINA LONGIFOLIA*, has proved hardy in a variety of soils and exposures for the last three years. It is a plant of Indian origin, being a native of the Himalayas in Nepaul at high elevations, and its flowers and foliage are striking. The leaves are narrow, about a foot long, deep shining green in colour, deeply cleft with wavy, margined lobes, thickly set with thistle-like spines, rendering careful handling a necessity. The flowers are tubular, with a broad open mouth. In the bud and early stages of opening they are white, but soon change to rose and finally deep carmine in the throat, lightening in colour to pale pink or white on the outside. They are borne in clusters or whorls at the base of the stiff, spiny upper leaves, together forming a leafy and floriferous long spike. The peculiar and unique change in colour in flowers, and the showy, thistle-like foliage, together with the glistening colour of the latter, combine to render the plant fit for any collection and worthy of association among the best of hardy perennials. Until entirely proved for hardihood in moist or stiff soils it would be well to give slight protection the first winter.—(*American Garden and Forest*.)

— THE PITMASTON DUCHESS PEAR.—Some thirty years ago it was my duty to go occasionally to Pitmaston Hall, St. John's, Worcester, to overlook the gardens, as the gardener was getting very infirm, and on my first visit the gardener pointed out the original tree, a standard, 20 to 30 feet high; it was in the middle of the garden, and probably is there now. In the fruit room he showed me the most beautiful sight I ever saw in the way of Pears; there were something like 200 fruits of a mellow yellow colour, and of such size I had not seen before. I brought about two dozen away with me to the fruit room at Malvern Hall, Solihull, and sent six of them (averaging 21 ozs. each) to a London office, but by some mishap these were never received nor recovered. I then sent six others, one of which was figured at the time under the name of Pitmaston Duchesse d'Angoulême. I was twenty years head gardener to Francis Edmond Williams, Esq., of Malvern Hall, and I am writing respecting this Pear during this period. Mr. F. E. Williams was anxious the Pear should be distributed through the R.H.S. to its members, as he said his father, the well-known raiser of Pitmaston Nonpareil Apple, Greengage Gooseberry, Pitmaston Orange Nectarine, and other fruits, had always disposed of his seedlings in that manner. I therefore wrote the Society Mr. Williams' wishes, and they gladly accepted such grafts as I could send them. Mr. Williams, who is now deceased, told me the note respecting this Pear in his father's stockbook was, that it was a cross between Marie Louise and Duchesse d'Angoulême, and doubtless this is correct. Of course, I have seen the tree trained to the front of the old gardener's cottage, which is close to the Hall, and I believe belongs to the property, and I always understood it was worked from the tree I have mentioned. It is now twenty-one years since I was in Mr. Williams' employ, but I thought I should like to put on record what I know respecting this remarkable fruit.—JOHN STEVENS.

INTERNATIONAL HORTICULTURAL EXHIBITION.

WE have received the following circular:—"The Great International Horticultural Exhibition, to be held this year at Earls Court, which has been secured from the Metropolitan District Railway Co. for this purpose, will be opened on the 14th of May. It will display the state of progress of horticultural science, taste, resources, implements, and plant culture at the present date; and, in addition, the various departments

and exhibits will serve as models, not only for the possessors and managers of estates, but for each and everyone who loves a garden. An abounding profusion of plants and flowers from all parts of the world will display their beauties of form and colour, grouped for effect in a garden charmingly laid out, both under cover and in the open, in one of the few available spaces in London. There will also be music of the highest class, the buildings and grounds will be brilliantly lighted by electricity, and everything will be done to ensure that this Exhibition—which appeals so much to the great English love of gardening—shall be a stupendous success. Here will be found examples of the gardens of all ages, including restorations of the ancient gardens of Egypt, Greece, and Rome; copies of those in China and Japan; and types of the Baronial, Italian, Tudor, Jacobean, Georgian, and Victorian eras. A large sub-tropical garden will also form a feature of the attractions offered. The Tea gardens of India and Ceylon will be represented, illustrating the growth of the Tea plant, and the manner of drying and manipulating the leaves. A model cottage garden and allotment ground will be shown, demonstrating practically what can be done in a limited area.

"This Exhibition will be not only representative of all that is being done in the United Kingdom to promote horticulture, but in addition arrangements have been made whereby foreign countries, especially Holland, Belgium, France, Italy, and Germany, will co-operate to show the progress in their respective lands. This will be interesting, not only on account of the display of the beautiful objects sent over, but as demonstrating the manner of overcoming different climatic conditions, and also the careful methodic treatment adopted abroad. Flower and fruit shows will be held periodically. There will be flower *fêtes*, besides special exhibits of American plants, Orchids, the old-fashioned herbaceous plants, &c. Lectures and demonstrations in practical gardening will be given regularly, and competitions in garden design and in gardening operations will be held, and prizes offered. Pictures representing all phases of the art of gardening, as well as photographs of particular trees and scenes, will be exhibited, and a reference library is being collected. There will be exhibits of new and rare and of special collections of plants, seeds, conservatories, greenhouses, methods of heating, ventilating, glazing, and general construction, garden requisites, tools, and all labour-saving machinery, statuary, vases, edgings, rockwork and fountains, seats, tents, and summerhouses, fencing, draining methods, decorations, and all objects and appliances that tend to enhance the beauty of a garden, or are necessary to its working. Medals, both gold and silver, and certificates will be awarded by the most capable Judges, in addition to considerable money prizes.

"The entire net profits will be devoted to such gardening institutions as the Executive Committee may select.—HENRY ERNEST MILNER, F.L.S., Assoc. M.Inst.C.E., *Chairman of the Executive Committee*; G. A. LOVEDAY, B.A., *Hon. Sec. Temporary Offices: 11, Grocers Hall Court, Poultry, E.C.*"



CATTELEYA HYBRIDA PRINCE OF WALES.

HYBRID Cattleyas are numerous, and perhaps twenty have received distinctive names, while, taking the hybrids in which a Cattleya has formed one of the parents, the total would be nearer forty. That of which an illustration is presented in fig. 13—namely, *C. hybrida* Prince of Wales, will take its place amongst the most delicately beautiful yet raised, and when it was shown at the Royal Horticultural Society's Exhibition in the Temple Gardens last May a first-class certificate was unanimously awarded for it by the Orchid Committee. It was shown by Messrs. F. Sander & Co., St. Albans, and it was said to be the result of a cross between the white Cattleya *Mossiae* Wagneri and *C. calumata*. The plant shows characters that might be considered intermediate between the two parents; and there is no question that it is a delightful and valuable seedling. The sepals and petals are pure white, as also is the lip, with the exception of a series of pale rose veins in the centre, and a finely frilled margin.

CALANTHES.

As these cease flowering the pseudo-bulbs must not be stored away in a cool house. Many mistakes have been made by subjecting them to this treatment, with the result that they decrease in size. They should be kept dry in a temperature of 55° until the time arrives for again starting them into growth. During the severe weather of last winter we lost some fine plants through using them for one night only where the temperature towards morning fell to the freezing point. Although they were there for a few hours only the whole of them decayed after they were returned to heat. These plants are worthy of every care and attention, as they are amongst the most useful Orchids that can be grown. Where choice

flowers are required in quantity too many cannot be included. Stage room is often limited, and thus as many cannot be accommodated as otherwise would be the case. They do well, however, in small baskets, and by suspending them from the roof it is possible to grow fully double the quantity without crowding those grown in pots or discarding other useful plants.

ORCHIDS IN FEBRUARY.

THE following Orchids are now in bloom at Messrs. John Laing & Son's, Stanstead Park Nurseries, Forest Hill:—*Angræcum sesquipedale*, *Cœlogyne cristata*, *Cattleya Trianae*, *Cymbidium Lowianum*; *Cypripediums Boxalli*, *callosum*, *Harrisianum*, *insigne*, *Sedeni* (hybrid), *cardinale*, *venustum*, and *villosum*; *Dendrobium Ainsworthi* (hybrid), *crassinode*, *Barberianum*, *heterocarpum*

the summer months they require plenty of water, and a good position near the glass where they have plenty of light without direct sunshine. One matter of great importance is to keep the atmosphere always moist, with plenty of fresh air about them, but take great care the temperature does not fall too low in consequence of too abundant moisture, which would be injurious. During the winter they should be kept dryer, also in spring until the flower spikes appear, when water should be given liberally and continued until the summer growth is completed. Many Orchids are killed by high temperatures and dry atmospheres, which bring all sorts of insects, and the plants are often injured still more in trying to eradicate the pests, especially in the warm section.

Gardeners have great difficulty in growing cool Orchids, because the houses usually are not adapted for them. I have often seen



FIG. 13.—CATTLEYA HYBRIDA PRINCE OF WALES.

(aureum), *Jamesianum* (Moulmein), *moschatum*, *nobile pendulum*, *Pierardi*, *Wardianum*, and *Wardianum splendens*; *Dendrochilum filiforme*, *Lælia anceps*, *Odontoglossums Alexandræ* (*crispum Blunti*), *Pescatorei*, and *pulchellum*; *Oncidium barbatum* and *ornithorhynchum*, *Phaius grandifolius*, *Phalænopsis amabilis* and *Schilleriana*, and *Sophronitis grandiflora*.

ODONTOGLOSSUMS.

FOR purposes of cultivation *Odontoglossums* should be divided into two sections or groups; the warm section species require an intermediate house, the temperature 50° to 55° in winter, with 10° higher in summer when they are making their growth. The principal species requiring warm treatment are *Odontoglossum grande*, *O. Insleayi*, *O. blandum*, *O. bictonense*, *O. bictonense album*, *O. Harryanum*, *O. vexillarium* and their varieties, *O. cirrhosum*, and *O. citrosum*. When making their growth during

Cattleyas, *Vandas*, *Oncidium*s, and *Odontoglossum*s all in one house growing or struggling together; eventually it is wondered why the *Odontoglossum*s are looking so bad, for they are sure to be the first to suffer in a mixed collection.

Now I will say a few words on the cool section. I need only name such as *O. Alexandræ* and its varieties, *O. triumphans*, *O. Edwardi*, *O. Pescatorei*, *O. Rossi majus*, *O. Sanderianum*, *O. odoratum*, *O. nebulosum*, *O. hebraicum*, and *O. Wilckeanum*. These cool *Odontoglossum*s are found at great elevations, and therefore are found in very cool situations amidst dense moisture, and consequently require little artificial heat; in fact, the greatest difficulty is keeping them cool enough in our summers. Like the warm section they require all the light possible without direct sunshine, and the best house is one that faces the north, so that you do not have to shade them very much. In midsummer, shade is, however, indispensable, and you cannot throw too much water

about them to keep the temperature low, and of course these Orchids must never be dry at any time of the year. Keep the sphagnum growing, and the plants will thrive, provided the drainage is right.

The best way to treat these Orchids is to three parts fill the pots with potsherds, placing a little charcoal to keep everything sweet and in good condition, then form a compost of half fibrous peat and half sphagnum moss; chop both up together, but not too fine or small, take the plant and place it in the pot, keeping the plant 1 inch above the rim, placing the material carefully over the roots so that these are not injured. The best time to pot these Orchids is after they have flowered, but some gardeners differ on this point; in my opinion, however, it is the best time. They do not all flower at the same time, so must not all be potted at the same time. Nothing gives so much pleasure as watching Orchids opening at different times of the year, for with a moderate collection there are not many weeks in the year without some in flower.

Orchids are much subject to yellow and black thrips, also to green and yellow flies, and if they are not looked well after will soon disfigure the plants, and prove an eyesore for the rest of the year. The best way to prevent them is to keep the plants well under notice, and as soon as one insect is seen have the plant taken down and thoroughly washed with soft soap water, not too strong; and in the case of thrips, after a thorough washing when the plants are dry use flowers of sulphur dusted very sparingly down the young growths. That I find is a preventive and worth being tried by every Orchid grower.—W. CARR.

PHALÆNOPSIS.

MANY of the early flowering species are now over, or soon will be, and those that require potting should be attended to as soon as possible. Plants requiring fresh sphagnum should be seen to, taking care not to employ too much of it, as a mass of this moisture-retaining material may prove injurious. Where a shift is not required the old sphagnum may be carefully removed, and fresh living moss, well chopped, being worked carefully among the roots in its place; crocks, well cleaned and broken fine, with or without sharp silver sand being mixed with it. All Orchids are partial to cleanliness, and none more so than Phalænopsis. Any cleaning that may be required should be attended to at the time of potting, when the plants may be placed in their summer quarters.

What the veteran cultivator, Mr. James Douglas, once said, respecting the excessive employment of sphagnum moss in potting Phalænopsis may well be treasured up by those who grow or intend growing them—viz., "A mass of broken moss (sphagnum) in the centre of a pot or basket is always a source of danger." This is no doubt true, much injury accruing from its excessive employment. Comparatively few roots are found in the potting compost, however small, the larger and healthier ones being as free as the air in which they delight.—W. R. W., *Great Marlow*.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

(Continued from page 60.)

TIME OF APPLICATION.—The Potato fungus does not usually attack the Potato crops before midsummer; in fact, the fungus seems, from experiments that have been made, to require a mean temperature of 55° as a minimum, which occurs in this country about the third week in May; but its vegetation is slow—that is it takes more heat or time to bring it into life than is necessary to continue its growth, once that becomes active. Thus we find the Potato disease virulent in late September and early October with no more heat than obtains early in May; yet there is no disease, as a rule, until the early part of July. Potato disease does not enter glass structures until the germs outside are liberated by the warm weather; then they come in through the ventilators. Still, if the cultivator may not have been careful to remove every particle of the preceding diseased plants and old soil, then disease may appear at an early date on Tomato plants, the germs springing from the soil. If we allow a month, say from May 18th, mean temperature 55°, to June 21st mean temperature 61°, for the oosphere to produce a plentiful crop of conidia, there will be plenty of zoospores active in dewdrops and prepared to enter the Potato plants by the stomates early in July. That is the time to strike them with the Bordeaux mixture. The first yellow speck on the leaf of a Potato plant should be the signal to combat the enemy. Early crops that are to be lifted off the ground by mid-July will not need treatment; but if they are to remain to mature apply the mixture directly a speck

appears. We recommend the first treatment early in July, never later than the appearance of the first discoloured spot due to the fungus. Repeat in a fortnight, and continue the treatment at fortnightly intervals, giving the last early in September. One treatment will be sufficient for the early crops, two for the second earlies, both being left to mature, and three generally for the latest crops, as the disease may not appear until August; but if the disease appears so as to require five treatments by all means use them so as to stay the plague. Remember that success rests wholly in early treatment; the work is altogether preventive. Waiting until the leaves become blackened before commencing the struggle can do no good as regards saving the tubers. The treatment has proved successful in France; it has routed the Potato fungus and every fungoid disease in America, and it has proved efficacious in this country wherever it has been applied thoroughly, and no evil effects have followed, but much good. Such, at least, is our experience of copper sulphate as a fungicide.

APPLYING THE PREVENTIVE.—A question arises as to where the mixture is to be applied. The stomata are most abundant on the under side of the leaf or leaflets, but there are ample openings on the upper surface, the midribs, and the stems to let in enough germinal tubes to ruin the Potato crop; and there are more stomata on the upper surface in wet weather—that is, on leaves formed in wet weather, than in fine, and such are always worst infected, therefore we say spray the whole plant and that will reach the fungus, evenly coating the plants with a thin film of the fungicide. With the knapsack pump any intelligent labourer may spray the Potato plants in the rows at a fair walking pace, going one way of the row and taking the other in returning; thus the plants receive a full, but not overdose, on all the surfaces exposed to attack, and no fungus can push its germinal tube through the film without being destroyed. This is best done in dry weather, but wet or dry spray, for some of the mixture will remain from the first spraying until the crop is lifted.

Mr. Jensen's system is admirable. Subject the seed tubers to dry heat, as before mentioned, and they will take "dry rot" or "wet rot" without delay. It will save gaps in the rows, introducing the disease in o the crop. Earth up the plants, it protects the tubers against infection by conidia washed into the soil, and the light admitted by drawing the tops aside lets daylight into otherwise crowded growth, checking exuberance, and assisting the crop to mature. The drawing aside is a check on exuberance, and tendency to form coarse waxy tubers.

Then there is the cutting off or pulling up of the tops of diseased plants after the leaves are blackened and before the mycelium of the fungus has descended by the stalks and infested the tubers. That seems useless in Jensen's view of tuber contamination, the contagion being by conidia washed into the soil, on or among the tubers; but the top pulling is a part of the system, and we have found it first-rate, especially along with the deep moulding. The tops can be cut off, or they can be pulled up by placing the feet—one on each side of the plant in the same direction as the row. This plan saves the tubers to a great extent, but the produce is very much less than when the foliage is kept clean and healthy by the application of Bordeaux mixture, which insures the greatest weight of produce of the highest nutrient value, and it is the cheapest preventive, as it renders everything but good cultivation unnecessary. Kill the oospheres, and there will be no conidia; destroy the conidia and zoospores, and there will not be any Potato disease.

THE RESULT OF TREATMENT WITH BORDEAUX MIXTURE.—One spraying when the plants are 12 to 15 inches high, another when brown specks appear on the leaves, and a third a fortnight later appear all that are necessary in ordinary seasons to protect the Potato crop from disease, for the mixture properly prepared—namely, with quicklime—adheres from first to last to the foliage, and the parts coated with the mixture are invulnerable.

Plants treated in the manner described had no disease spots in 1891 until August 10th, and those on parts—new growths—not dressed. These were given a film of the mixture, and the spots dried up. Early in September the growth was complete, and this allowed of the whole plant being coated with the mixture. The plants from first to last were green and healthy, the haulm dying naturally. Result—no diseased tubers, and a full crop.

Undressed plants were turning yellow and spotted, becoming curled in the leaflets, brown in the leaves, black in the stems and manifestly dying on August 10th. Early in September the untreated plants were shedding their leaflets; some leaves had collapsed, and at the end of that month the plants were brown and dry; mere bare sticks. Result—two diseased tubers to one sound, and the whole crop two-thirds only of that of a full undiseased crop. More, the saleable tubers were practically nil, because the disease fastened on the "fattest" tubers.

Sulphate of copper is largely used in the arts for making green

paints, for telegraph batteries, for calico printing, and other purposes. The price varies, small quantities charged for higher than larger. Crystals about 4½d. per lb., powdered a little more. An approximate estimate only can be given of the cost per acre of the treatment recommended, say three sprayings.

Sulphate of copper, 66 lbs. at 4½d.	...	...	£1	4	9
Lime and labour of preparation	...	...	0	2	6
Labour, three days at 2s. 6d.	...	...	0	7	6
			£1 14 9		

Thus for the price of half a ton of Potatoes the crop may be protected against disease, and the increased yield in Potatoes repays the outlay cent. per cent. Then there is the value of a sound crop to place against that of a diseased one, the greater quantity of merchantable tubers, and the enormous saving and labour in not having to assort the tubers as occurs when the crop is diseased. These are factors in the case which are apt to be overlooked, but they give a sound crop double the advantage of the diseased one alike to the grower and consumer.—G. ABBEY.

(To be continued.)

SEED GROWING IN GERMANY.

[By Mr. GEORGE F. DANIELS. Read before the members of the East Anglian Horticultural Club, Norwich, January 13th, 1892.]

HAVING spent about two years in one of the chief seed growing centres of Germany, a few short notes on the chief plants cultivated will perhaps prove interesting. Although the ways and means of cultivation differ considerably from those of this country, and through climatic influences could not in many instances be carried out; still, we all like to know at least something about the growing for seed purposes of the best of our annuals, especially when we take into consideration the large quantities of seeds which are annually imported from this source, and necessarily so, as many of them would not come to maturity in this climate, therefore must be left to the care and industry of our continental brethren.

It is only within the past twenty to thirty years that this trade has assumed its present gigantic proportions. The increased demand for flowers in this country has given a corresponding impetus to seed growing abroad, where they have the advantage of cheap labour and a climate specially adapted to this work. England next to America is the largest importer of German grown flower seeds. Besides this large quantities find their way to all parts of the world. The secret of this successful cultivation lies in the bright dry autumn, which enables seeds to stand longer and become thoroughly ripened. Not only is the climate well adapted for the production and ripening of seeds, but also the soil, which in this particular locality is a deep, rich, and moderately stiff loam, and is all that can be desired for the purpose. I will briefly touch upon some of the leading varieties, and endeavour to describe their cultivation.

Stocks form one of the leading features in a seed-growing establishment, and are one of the most expensive crops to grow—that is, so far as labour is concerned. This will be seen when I tell you that they are nearly all grown in pots, only the inferior sorts being left to take their chance in the open ground. One firm grew something like 300,000 pots of these annually.

The plants are kept on stages, erected in the same way as an ordinary greenhouse stage, and have a wooden or tiled roof to keep off the heavy rain and too direct rays of the sun, the sides and back being left open. One of the essentials for good cultivation is the soil, which must be well matured and free from any vegetable matter. Therefore three years' supply is always kept on hand and turned from time to time to make it sweet. The plants which are raised in pits on a slight hotbed are pricked into 6-inch pots when in the fourth leaf, and are generally planted seven to nine in a pot, so as to throw up single stems only. There are two reasons for this crowding, as we may term it. Firstly, Seed is only obtained from the single flowers. As soon as the doubles make their appearance the plants are cut off, thus giving more room to those remaining. Secondly, Placing several in each pot tends to starve the plants somewhat; and when thus treated they produce a larger percentage of doubles; this has been proved. As seed saved from plants grown in the open ground does not produce anything like the same percentage—50 per cent. double flowers is considered a good average, although in some cases it ranges as high as 60 per cent. and even 65 per cent.

Stocks require a copious supply of water throughout the growing period, which extends from April to October, except for a week or two when they first show their bloom, when it must be sparingly given, as over-watering at this time would cause them to damp off

and encourage the attack of insect pests, which are very troublesome at this period. The labour required in constantly watering and tending such an immense number of pots is very great, and keeps up the price of these beautiful annuals.

Autumn Stocks and Wallflowers require much the same treatment, but in their case a much longer period is required for growing and ripening the seed. The seed is sown in July, and the plants potted in the same way and kept through the winter, a very difficult thing where proper accommodation does not exist, and the thermometer is often several degrees below zero. The larger growers who have the room keep them in cool houses, but in small establishments where such is not obtainable they are kept in pits well covered with litter, air being admitted on fine days. If the winter proves severe the plants suffer accordingly, as the pits become snowed and frozen for weeks together, and want of air causes many to damp off.

Asters form another important feature, perhaps even more so than Stocks, and are grown by acres, one firm alone devoting over 100 acres to them. They are raised in pits, and afterwards planted out on the beds where it is intended to grow them for seed. The distance they are planted apart varies according to the variety, but is seldom less than a foot each way. The planting is done by gangs of men, much in the same manner as we place out Cabbages, and each plant is carefully watered to settle the soil around it, the water being conveyed to the fields by carts specially constructed for this purpose. After this they require little attention except in hoeing and keeping the soil clean until they come into bloom, when they must be constantly examined, and all stragglers and "button-eyed" ones removed, as the best strains will in some seasons show a small percentage of the latter. The best flowers are selected and marked, and the seed of these is kept for stock seed for next year's growing. The seed ripens in September, but some of the later sorts often remain till early in October before it is fit to gather; indeed I have gathered the Aster seed when the snow was on the ground.

Petunias, which are grown in large quantities, are raised in pits, then potted and placed on stages in the open, after the same manner as Stocks. They require much attention, as each bloom has to be fertilised by hand to ensure setting for seed. The pollen from the double blooms is very difficult to obtain; the flowers being so dense that they have often to be removed from the plant, then placed in wet sand and pulled open so as to allow the sun and air to ripen the pollen, which is carefully removed and placed on the finest single blooms. The seed saved from these is called double, but it is rarely possible to obtain more than 25 to 30 per cent.

Calceolarias are sown in July and August, and when large enough are pricked off into pans, and after two or three shifts they are finally placed in 6-inch pots about the end of January, and as soon as the weather permits (usually in May) they are arranged upon stages outside where they are to bloom and seed. They are very shy seeders, and it is only by careful hybridisation that a crop can be ensured. Every bloom is examined, and the pollen taken from the stamens and placed on the pistil, and as the operation must be performed when the pollen is quite ripe they must be looked through nearly every day to catch each bloom as it comes to maturity. A constant and abundant supply of water during the blooming period is very essential.

Carnations are very important, and must not be passed over without a few words. These are grown on stages as before described, and are propagated either by cuttings or layers. The latter method is usually adopted, and is performed by placing a collar or hoop of wood about 1½ or 2 inches deep round the top of the pot and filling up with soil; into this the young shoots are layered, and when sufficiently rooted are taken off and potted, the hoop and extra soil are then removed, and the mother plant kept to ripen what seed there may be on it. The seed is very difficult to obtain under any circumstances, and then only in small quantities. The supply is always limited, and there is not much chance of its ever being much cheaper than at the present time. In one establishment I visited 10 to 15,000 pots were kept going for these alone.

Cinerarias, Begonias, and Gloxinias are also grown in large quantities, and under much the same treatment as here. The two latter have to be carefully hybridised to ensure a crop of seed. Primulas, Cyclamen, and many others too numerous to refer to are found in great numbers.

Of the commoner kinds of annuals I cannot say much except that they are grown in quantities as would astonish a great many. Mignonette and Dianthus are grown by the ton. Pansies also come in for a large share, and several hundredweights are often harvested by one firm alone; they require a great deal of attention during the seeding season and must be caught at the right time, if not the pod bursts and the seed is scattered. Some seedsmen go in extensively for growing Everlastings and reap many acres of them

under cultivation. This forms quite a business by itself. They are dried in warehouses specially built for the purpose, and afterwards bunched and packed for export.

Hollyhocks are extensively grown, but there, as in this country they are subject to disease and are an uncertain crop. Hardy perennials are grown in large variety, although not in such quantities as annuals. Several collections I know contained from 1000 to 2000 varieties all kept for seed purposes. One firm in particular made a point of leaving as many species as possible, if only a plant or two of each, that is provided it was suitable to the climate and could be made to produce seed. Of Sedums I have observed between twenty and thirty distinct species. Aquilegias in almost endless variety, Delphiniums, Lychnis, Papaver, Linum, and Anehusa are to be found in great numbers, and also some grand specimens of *Heracleum giganteum* and *Verbascum olympicum*. This latter grows to a large size, from 8 to 10 feet high, and measures 5 feet through. The flowers are more of a bronzy yellow than the variety known as the Shepherd's Club which grows wild in this country, and looks grand when in full bloom.

The pits in which most of the plants are raised deserve a word or two of notice. They are constructed of wood, are generally not more than 9 to 18 inches high, the soil cleared out to a depth of about 3 feet; they are then filled up in the following manner. Firstly, a layer of rough stalks, then a good layer of fresh manure to within about 9 inches of the top, and well trodden down. This is allowed to settle for a day or two, and upon this is placed a layer of fine soil in which the seedlings are raised.

During the summer they are used for growing some of the more tender annuals, such as Cockscombs, Portulacas, &c., so that protection may be given if necessary during cold nights. The soil and manure is removed in the autumn and carefully put away. In this manner it is being utilised whilst preparing it for future potting operations. They are used in winter for storing Wall-flowers and autumn-sown Stocks, as before mentioned.

The drying houses are of great size and several storeys high, the floors of some measuring 200 feet by 50, and filled with numerous shelves or drawers; these are about 1½ inch deep, with rough canvas bottoms so as to allow the air to circulate freely. They are made to fit in a framework much in the manner of a chest of drawers. The floors are also fitted with heating apparatus, so that in wet seasons the drying can be carried on more effectually and quickly.

The plan of improving and selecting stocks of seed is as follows:—As soon as the plants are fully in bloom they are carefully examined, and the best and truest as regards colour or shapes are singled out by placing a stake next them. When the seed is ripe they are carefully gathered by themselves, and kept for stock the following year. This is very necessary in the case of some annuals, which show a great tendency to revert to the wild state, and at the same time it improves the stocks from year to year, so that everything is brought as near perfection as possible. There are some unscrupulous persons who do not take so much trouble, and care little what seed they send out provided a market can be found; but the above method is carefully and conscientiously carried out by all firms of good standing and repute.

Not many vegetables are cultivated in this particular district, but the few that are deserve notice, especially Cauliflowers, for which Erfurt is justly famed, and the locality seems made by Nature for their culture. The chief Cauliflower grounds are situated on a low lying strip of land some miles in length and intersected by warm springs, which never freeze, even in this rigorous climate. This ground is cut up into patches about 100 yards long by 20 wide, and the springs are so arranged as to surround it on all sides like ditches, and are about 9 feet wide. The patches themselves are raised from 2 to 3 feet above the level of the ditches, and form a high well-drained bed for the plants, whilst a copious supply of water is always on hand.

The method of watering is very simple—viz., a bowl about the size of an ordinary hand cup fitted to the end of a pole 10 to 15 feet long, and with this the water is taken from the ditches and thrown on and around the plants. This entails a lot of labour, especially during the hot dry summer months. Cauliflowers flourish wonderfully under such treatment, and form a very remunerative crop to the market grower.

The ditches are utilised for growing Watercress, which flourishes in great abundance, and Erfurt is one of the few places in Germany where these can be grown in any quantity. This is due to the springs, which keep the water at an even temperature all the year round. Many seedsmen make arrangements with the market gardeners, so that they have the privilege of selecting the best of the Cauliflower to stand for seed. It is altogether a very uncertain crop, especially in wet seasons, being much subjected to mildew.

Although the winter is severe in these parts, and continues sometimes late into the spring, they are not troubled with wind frosts, &c., to the extent we are; for when the frost breaks up it seldom returns, and towards the end of April and the beginning of May when the warm rays of the sun begin to make themselves felt, the whole land is like a hotbed, and on the first hot day it is no unusual thing to see clouds of steam rising from the ground. At this period everything grows with great rapidity, and planting and sowing are vigorously carried on. Outdoor Cucumbers are sown about this time, and if the weather continues favourable quickly make their appearance and usually bear abundant crops. They are grown largely, both for seed purposes and for pickling. The latter is performed as follows:—By placing the Cucumber in a large earthenware pot, and mixing with them certain portions of salt, vinegar, and Dill (this herb giving them a peculiar flavour much appreciated), when full the pot is placed in a warm dry place, and in a week or so is fit for use, and will keep in good condition for a considerable time. This pickle is known by the name of Sauce Gherkin, and is largely used by all the working classes.

Roses are preserved through the winter by bending the trees down to the ground, and placing a good depth of soil over them; in fact, burying them, and it is surprising how quickly they break out into foliage and flower after being uncovered in the spring.

Labour is, on the whole, very cheap. The average wages of a working man is from 7s. to 9s. per week, and for this they have to work from five in the morning till seven in the evening, and in winter one hour less, commencing at six instead of five. In summer the hands are employed in the seed grounds, and during the winter months in the warehouses cleaning and dressing seeds. Much of the lighter field work, such as hoeing, cleaning, and gathering seed, is done by women and girls, who work in gangs under the charge of a foreman. They are very expert in the use of the hoe, and will get over nearly as much ground as a man. They earn from 10d. to 1s. per day, and many have to walk several miles to and from work, as the majority live in the surrounding villages. Although the hours of labour are long, I do not think more work is performed than in this country with over ten and a half hours a day, and on the whole they are not such "stickers" to work as our average English workmen.

PLANTS AND HORTICULTURE IN HAINAN.—The great island of Hainan, off the south-eastern coast of China, is but little known to Europeans, although since 1877 there has been a treaty port there. Mr. Parker, the Consul at Kiungchow, the port in question, lately made a short journey in the interior of the island, of which he gives some account in a recent report. He travelled about sixty miles up the Poh-Chung River to within a mile or two of Pah-hi, which is, at most seasons of the year, considered the limit of navigation for all but the smallest craft. He walked round the walls of Ting-an city, one of the disturbed districts during the recent rebellions, on New Year's Day (February 9th). They are just one mile in circuit, and differ little from those of other Chinese cities. Wherever he had an opportunity of walking diametrically across lengthy curves of the river he found the enclosed area to be extremely well cultivated. Though not so flat, its general appearance recalled many features of the Tonquin delta, especially in its great wealth of Bamboo. The productions of the soil are much the same, the Papaw, Arca Palm, Sweet Potato, Turnip, Ground Nut, Orange tree, &c.; but a peculiar Hainan feature is the Cocoa-nut Palm. Another peculiarity of this region is the ubiquitousness of the dwarf Pandanus, probably the same as the *P. odoratissima* of Fiji, the fibre of which is used in the manufacture of grass cloth, and is usually known to foreign trade here as Hemp. Much of the land was under Sweet Potato cultivation, and every household seemed to possess a few pigs of the very superior and stereotyped Hainan variety, black as to the upper and white as to the lower part of the body, with a dividing line of grey running along the side from the snout to the tail. These wholesome-looking pigs are fattened on the Sweet Potato, and do not rely for sustenance upon precarious scavenging, as is the case with the repulsive and uncleanly animals of North China. Land contiguous to the river is irrigated by enormous wheels, 40 feet in diameter, of very ingenious construction, moved by the current, needing no attention, and discharging perhaps 100 gallons of water in a minute into the trough above, day and night without intermission. The temperature during the week ranged between 50° and 60° Fahr. Among the trees which attracted his attention was one locally called the "Great-leaved Banyan," which looks remarkably like the Gutta-percha tree. The natives seem to use its gum mixed with gambier, in order to make that dye "fast;" but there is some doubt whether it is not the sap of the real Banyan tree which is used for the purpose. A very strong silk is made from the grub called the "celestial silkworm," or locally "paddy insect." This grub is found on a sort of Maple. When full grown it is thrown into boiling vinegar, on which the "head" of the gut, or "silk," appears; this is sharply torn out with both hands drawn apart, and is as long as the space between them, say 5 feet. It is so strong that one single thread of it is sufficient to make a line with which to catch the smaller kinds of fish.—(*Nature*.)

ROYAL METEOROLOGICAL SOCIETY.

THE annual general meeting of this Society was held on Wednesday evening, the 27th ult., at the Institution of Civil Engineers, 25, Great George Street, S.W.; Dr. W. Marcet, F.R.S., Vice-President, in the chair. The report of the Council for the past year showed the Society to be in a very satisfactory position. In May the library and offices were removed to more commodious premises at 22, Great George Street. After defraying the cost of fitting up the new offices, and the increased rental, there still remained a balance in hand of £224. Thirty-four new Fellows were elected during the year, the total number on the roll of the Society now being 552.

Owing to the absence of the President, Mr. Baldwin Latham, M.Inst.C.E., through an attack of influenza, his address on "Evaporation and Condensation" was read by the Secretary. The question of evaporation is as of great importance as the study of the precipitation of water on the face of the earth, as the available water supplies of the country entirely depend upon the differences between these two sets of observations. The earth receives moisture by means of rain, dew, hoar frost, and by direct condensation. It loses its moisture very rapidly by evaporation. Although evaporation mainly depends upon the difference between the tensional force of vapour due to the temperature of the evaporating surface and the tensional force of the vapour already in the atmosphere, yet it is largely influenced by the movement of the air, and by its dryness or the difference between the dew point and the actual air temperature. Evaporation goes on at night so long as the water surface is warmer than the dew point. With sea water the evaporation is about $4\frac{1}{2}$ per cent. less than with rain water, while with water saturated with common salt the evaporation is 15 per cent. less than with rain water.

In his experiments Mr. Latham used an evaporating gauge made of copper, 1 foot in diameter, and containing 1 foot in depth of water, which was floated by means of a hollow copper ring, placed 6 inches distant from the body of the evaporator, and attached to it by four radial arms. This form of evaporator was found extremely convenient in carrying on all evaporation experiments. It was floated in a tank 4 feet in diameter, containing 30 inches depth of water. During the period of thirteen years, from January, 1879, to December, 1891, this evaporator has never once been out of order, or been interfered with in the slightest degree by frost.

Experiments were made with some 5-inch evaporators as to the effect of colour on the amount of evaporation, one being painted white, another black, and the results given by these gauges were compared with a copper gauge exposed under similar conditions. This comparison was the means of showing that the greatest errors in evaporating gauges arise from the capillarity of the water rising on the sides of the gauge, and thus inordinately increasing the amount of evaporation. Consequently a small gauge having a larger amount in proportion of side area than a larger gauge, gives a very much greater amount of evaporation.

The results from the floating evaporator, 1 foot in diameter, show that the average amount of water evaporated annually during 1879-91 was 19.948 inches. It was found, however, that as a rule, during the period from October to March there were certain occasions when condensation was measured. The amount of these condensations in thirteen years averaged 0.308 inch per annum. The 5-inch evaporating gauge freely exposed to atmospheric influences, gave during the same period (1879-91) an average annual depth of evaporation equal to 38.185 inches.

The average annual evaporation, during the three years 1879-81, from the 5-inch copper gauge standing in water was 27.90 inches, from one painted black 22.97 inches, and from another painted white 21.74 inches, whilst a gauge of the same dimensions, freely exposed in the atmosphere, gave in the same period, 36.96 inches, and the 1-foot floating evaporator, 19.40 inches. The 5-inch copper gauge gave a larger amount of evaporation than the gauge painted black.

Mr. Latham next described some percolation experiments which were carried out by Mr. C. Greaves at Old Ford, by Messrs. Dickinson and Evans at Hemel Hempstead, and by Sir J. B. Lawes and Dr. Gilbert at Rothamsted. He then detailed the results of his own experiments, and also the gaugings of the underground waters in the drainage areas of the rivers Wandle and Graveney.

He further stated that in the course of his observations on the flow of underground water, he had observed that at certain particular seasons of the year it was possible to indicate the direction and volume of the flow of underground streams, even when they were at a considerable depth, owing to the formation of peculiar lines of fog.

Dr. C. Theodore Williams was elected President for the ensuing year.

CROSSING PLANTS.

THE term "cross" is used to denote the offspring of union between plants, whether of different species or varieties, or even different flowers upon the same plant. There are different kinds of crosses. One of these is the hybrid, or a cross between two species, as a Plum and a Peach, or a Raspberry and a Blackberry. Crosses between varieties of one species are termed "half-breeds" or "cross-breeds," and those between different flowers upon the same plant are called "individual crosses." Distinct species, however, as a rule, refuse to cross. If we apply the pollen of a Hubbard Squash to the flower of the common field Pumpkin, the fruit will not form. The same is true of the Pear and the Apple, the Oat and

the Wheat, and most very unlike species. Or the pollen may "take" and the seeds may grow, but the plants which they produce may be wholly barren, sometimes even refusing to produce either flowers or seeds, as in the instance of some hybrids between the Wild Goose Plum and the Peach. Sometimes the refusal to cross is due to some difference in the time of blooming, or some incompatibility in the structure of the flowers. But it is enough to know that there are characters in widely dissimilar plants which prevent intercrossing, and that these characters are just as positive as are size, colour, productiveness, and other characters; that is, the checks to crossing have been developed through the principle of universal variability and natural selection, just as other characters have been established. The result is simply that the best results of crossing are obtained when the cross is made between different individuals of the same variety, or, at farthest, between different individuals of the same species. In other words, hybrids—or crosses between species—are rarely useful, and it follows, as a logical result, that the more unlike the species the less useful will be the hybrids.

Again, crossing alone can accomplish little. The chief power in the progression of plants appears to be selection. Selection is the force which augments, develops, and fixes types. Man must not only practise a judicious selection of parents from which the cross is to come, but he must constantly select the best from among the crosses, in order to maintain a high degree of usefulness and to make any advancement; and it sometimes happens that the selection is much more important to the cultivator than the crossing. I do not wish to discourage the crossing of plants, but I do desire to dispel the illusion which too often hangs about it.

The improvement of existing varieties by crossing is a more important office than the summary production of new varieties. This is the chief use which Nature makes of crossing—to strengthen the type. Think, for instance, of the great rarity of hybrids or pronounced crosses in Nature! No doubt all the authentic cases on record could be entered in one or two volumes, but a list of all the individual plants of the world could not be compressed into ten thousand volumes. There are a few genera, in which the species are not well defined or in which some character of inflorescence favours promiscuous crossing, in which hybrids are conspicuous; but even here the number of individual hybrids is very small in comparison to the whole number of individuals; that is, the hybrids are rare, while the parents may be common.

Darwin was the first to show that crossing within the limits of the species or variety results in a constant revitalising of the offspring, and that this is the particular ultimate function of the operation. Darwin's results are, concisely, these—self-fertilisation tends to weaken the offspring; crossing between different plants of the same variety gives stronger and more productive offspring than arises from self fertilisation; crossing between stocks of the same variety grown in different places, or under different conditions, gives better offspring than crossing between different plants grown in the same place or under similar conditions; and his researches have also shown that, as a rule, flowers are so constructed as to favour cross-fertilisation: in short, he found, as he expressed it, that "Nature abhors perpetual self-fertilisation." Darwin's well-known experiments show that crosses between fresh stock of the same variety were nearly 30 per cent. more vigorous than crosses between plants grown side by side for some time, and over 44 per cent. more vigorous than plants from self-fertilised seeds. On the other hand, experiments showed that crosses between different flowers upon the same plant gave actually poorer results than offspring of self-fertilised flowers. It is evident, from all his experiments, that Nature desires crosses between plants, and, if possible, between plants grown under somewhat different conditions.

In extended experiments of my own in the crossing of Pumpkins, Squashes, and Gourds, carried on during several years, increase in productiveness due to crossing has been marked in many instances. Marked increase in productiveness has been obtained from Tomato crosses, even when no other results of crossing could be seen.

Almost every farmer and gardener at the present day feels that an occasional change of seed results in better crops. Much of the rapid improvement in fruits and vegetables in recent years is due to the practice of buying plants and seeds so largely of dealers, by means of which the stock is often changed. Even a slight change, as between farms or neighbouring villages, sometimes produces more vigorous plants and often more fruitful ones. In the cross, a new combination of characters or a new power fits it to live better than its parents in the conditions under which they lived. In the case of change of stock we find just the reverse, which, however, amounts to the same thing, that the new characters or powers fit the plant to live better in conditions new to it than plants which have long lived in those conditions. In either case the good comes from the fitting together of new characters or powers and new environments.

Crossing within the variety and change of stock within ordinary bounds are therefore beneficial, and the results in the two cases seem to flow from essentially the same causes, and crossing and change of stock combined give much better results than either one alone. These processes are much more important than any mere groping after new varieties, not only because they are surer, but because they are universal and necessary means of maintaining and improving both wild and cultivated plants. Upon this point Darwin expressed himself as follows:—"It is a common practice with horticulturists to obtain seeds from another place having a very different soil, so as to avoid raising plants for a long succession of generations under the same conditions; but with all the species which freely intercross by the aid

of insects or the wind, it would be an incomparably better plan to obtain seeds of the required variety, which had been raised for some generations under as different conditions as possible, and sow them in alternate rows with seeds matured in the old garden. The two stocks would then intercross with a thorough blending of their whole organisations, and with no loss of purity to the variety; and this would yield far more favourable results than a mere change of seeds."

The second result of crossing, the summary production of new varieties, is the subject which is almost universally associated with crossing in the popular mind, and even among horticulturists themselves. It is the commonest notion that the desirable characters of given parents can be definitely combined in a pronounced cross or hybrid. There are two or three philosophical reasons which somewhat oppose this doctrine, and which we will do well to consider at the outset. In the first place, Nature is opposed to hybrids, for species have been bred away from each other in the ability to cross. If, therefore, there is no advantage for Nature to hybridise, we may suppose that there would be none for man; and there would be no advantage for man did he not place the plant under conditions different from Nature or desire a different set of characters. We can overcome the refusal to cross in many cases by bringing the plant under cultivation where new conditions overpower its former antipathies. Yet it is doubtful if such a plant will ever acquire a complete willingness to cross. In like manner we can overcome in a measure the comparative seedlessness of hybrids, but it is very doubtful if we can ever make such hybrids completely fruitful. It would appear, therefore, that with plants in which fruits or seeds are the parts sought, no good can be expected, as a rule, from hybridisation, and this seems to be affirmed by facts. It is evident that species which have been bred away from each other in a given locality will have more opposed qualities than similar species which have arisen quite independently in places remote from each other. In the one case the species have struggled with each other until each one has attained to a degree of divergence which allows it to persist, while in the other case there has been no struggle between the species, but similar conditions have brought about similar results. These similar species which appear independently of each other in different places are called representative species. Islands remote from each other, but similarly situated with reference to climate, very often contain such species, and the same may be said of other regions much like each other. Now it follows that if representative species are less opposed than others they are more likely to hybridise with good results; and this fact is well illustrated in the Kieffer and allied Pears, which are hybrids between representative species of Europe and Japan. We will also recall that the hybrid Grapes which have so far proved most valuable are those obtained by Rogers between the American *Vitis Labrusca* and the European Wine Grape, and that the attempts of Haskell and others to hybridise associated species of native Grapes have given, at best, only indifferent results.

Another theoretical point borne out by practice is that because of the great difference between parents pronounced hybrid offspring are unstable. Again, because of the unequal and unknown powers of the parents, we can never predict what characters will appear in the hybrids. This fact was well expressed by Lindley a half century ago in the phrase, "Hybridising is a game of chance played between man and plants." The characters of hybrids as compared with the characters of simple crosses between stocks of the same variety are therefore ambiguous, negative, and often prejudicial.

The difficulties in the way of successful results through hybridisation are, therefore, the difficulty of effecting the cross, infertility, instability, variability, and often weakness and monstrosity of the hybrids, and the absolute impossibility of predicting results. The advantage to be derived from a successful hybridisation is the securing in combination the most desirable features of both parents; and this advantage is often of so great moment that it is worth while to experiment in the face of numerous failures. From theoretical considerations it is apparent that hybridisation is essentially an empirical subject, and the results are such as fall under the common denomination of chance. And as it does not rest upon any legitimate function in nature, we can understand that it will always be difficult to codify laws upon it.

Among the various characters of hybrid offspring, the most prejudicial one is their instability; it is difficult to fix any particular form which we may secure in the first generation of hybrids, and therefore we find that the great majority of the best hybrids in cultivation are increased by bud-propagation, as cuttings, layers, suckers, buds, or grafts. In fact, there are few instances of undoubted hybrids which are propagated with practical certainty by means of seeds. This simply means that it is difficult to fix hybrids so that they will come "true to seed," and makes apparent the fact that if we desire hybrids we must expect to propagate them by means of buds.

Let us now recall how many undoubted hybrids there are, named and known, among our fruits and vegetables. In Grapes there are the most. There are Rogers' hybrids, like Agawam, Lindley, Wilder, Salem, and Barry; and there is some reason for supposing that Delaware, Catawba, and other varieties are of hybrid origin. And many hybrids have come to notice lately through the work of Munson and others. But it must be remembered that Grapes are naturally exceedingly variable, and the specific limits are not well known, and that hybridisation among them lacks much of that definiteness which ordinarily attaches to the subject. In Pears there is the Kieffer class. In Apples, Peaches, Plums, Cherries, Gooseberries, Blackberries, Dewberries there are no commercial hybrids. The Strawberry is doubtful. Some of the

Raspberries, like Caroline and Shaffer, appear to be hybrids between the red and black species. Hybrids have been produced between the Raspberry and Blackberry by two or three persons, but they possess no promise of economical results. Among all the list of garden vegetables—plants which are propagated by seed—I do not know of a single authentic hybrid, and the same is true of Wheat—unless the Carman Wheat Rye varieties become prominent—Oats, the Grasses, and other farm crops. But among ornamental plants there are many; and it is a significant fact that the most numerous, most marked, and most successful hybrids occur in the plants most carefully cultivated and protected—those, in other words, which are farthest removed from all untoward circumstances and an independent position. This is nowhere so well illustrated as in the case of cultivated Orchids, in which hybridisation has played no end of freaks, and in which, also, every individual plant is nursed and coddled. For such plants the struggle for existence is reduced to its lowest terms; for it must be borne in mind that even in the garden plants must fight severely for a chance to live, and even then only the very best can persist or are even allowed to try.

Most of the so-called hybrid fruits and vegetables are myths. There is everywhere a misconception of what a hybrid is, and how it comes to exist; and yet, perhaps because of this indefinite knowledge, there is a widespread feeling that a hybrid is necessarily good, while the presumption is directly the opposite.

There is an old yet common notion that there is some peculiar influence exerted by each sex in the parentage of hybrids. It was held by certain early observers, of whom the great Linnæus was one, that the female parent determines the constitution of the hybrid, while the male parent gives the external attributes, as form, size, and colour. The accumulated experience of nearly a century and a half appears to contradict this proposition. There are instances, to be sure, in which this old idea is affirmed, but there are others in which it is contradicted. The truth appears to be, that the parent of greater strength or virility makes the stronger impression upon the hybrids, whether it is the staminate or pistillate parent. And it appears to be equally true that it is usually impossible to determine beforehand which parent is the stronger. The common little pear-shaped Gourd will impress itself more strongly upon crosses than any of the edible Squashes and Pumpkins with which it will effect a cross, whether it is used as male or female parents. Even the imposing and ubiquitous great field Pumpkin is overpowered by the little Gourd. Seeds from a large and sleek Pumpkin, which had been fertilised by Gourd pollen, produced Gourds and small hard-shelled globular fruits which were entirely inedible. A more interesting experiment with the handsome green-striped Bergen Fall Squash showed a similar prepotency of the Gourd.

Uncertainty follows hybridisation, and uncertainty also attaches to the mere act of pollination. Between some species, which are closely allied and have large and strong flowers, four-fifths of the attempts at cross-pollination may be successful, but such a large proportion of successes is not common. Even the most expert operators fail as often as they succeed in promiscuous pollinating. In my own experience 234 pollinations of Gourds, Pumpkins, and Squashes, mostly between varieties of one species and including some individual pollinations, gave 117 failures and 117 successes. But from all the 117 fruits, for some of them turned out to be seedless, and some were destroyed by insects before they were ripe or were lost by accidental means, a few more than half of the successful pollinations—if by success we mean the formation and growth of fruit—really secured us seeds, or but one-fourth of the whole number of efforts, and this was considered a successful experiment. Referring to a record-book where experiments were made with many species, I find that a total of 312 efforts resulted in 89 successes, 223 failures.

And now the sum of it all is this: Encourage in every way crosses within the limits of the variety and in connection with change of stock, expecting increase in vigour and productiveness. Hybridise, if you are curious to know what Nature will do about it, but do it carefully, honestly, thoroughly, and do not expect too much. Extend Darwin's famous proposition to read like this: Nature abhors both perpetual self-fertilisation and hybridisation.—(*The summary of a paper read at a recent meeting of the Massachusetts State Board of Agriculture by Professor L. H. Bailey of Cornell University.*)



HARDY FRUIT GARDEN.

RENOVATING UNPROFITABLE APPLE AND PEAR TREES.—Last year was a good season to test these in most localities, and wherever the crop was generally a good one any trees that failed to bear satisfactorily should now have a careful inspection in order to ascertain the cause of failure. Some kinds of Apples are much disposed to bear only once in two years, and, even under favourable conditions in every way, do not flower oftener than this, or only to a small extent. The White Juneating

is a well-known instance of this biennial fruiting; but Kentish Full-basket, Herefordshire Pearmain, Fearn's Pippin, Blenheim Pippin, and many others are more or less inclined to follow this plan, the cause of which may be ascribed, in some instances at least, to exhaustion of the tree while bearing a heavy crop, and this has been proved in some places with the White Juncating by cutting all the flowers off as soon as they appear. Where all the trees of this kind flower in one season a continuous crop may be had by depriving half the trees of their flowers. In considering the fruitfulness of trees allowance must therefore be made for this peculiarity with trees that bore well the previous season. But there are many trees in gardens and orchards which never bear a good crop; some fail because they are bad varieties, and where this is the case if they are healthy, vigorous trees they should have their tops cut back now ready for re-grafting with better varieties. In doing this it is well to cut back to within a moderate distance of the main stem, or there will be much wild wood in the centre of the tree, which will prove troublesome by sending out strong young shoots, but do not make any cuts more than 3 inches in diameter, and leave enough wood so that an inch more may be cut off each place when the time arrives for grafting. Any trees of these useful varieties that are too old or otherwise unfit for grafting should be destroyed at once.

It frequently happens that trees of reliable varieties cease to bear good crops from exhaustion. This is more liable to occur in grass orchards than in a garden, as the usual routine of cropping and manuring the ground for vegetables also assists the fruit trees that are near. In grass orchards it is a different matter. Very often the grass is mown and carted away for hay, thus assisting to impoverish the ground, and nothing is returned again as manure. When manure is given the grass has the greatest share before it reaches the roots of the trees. The beneficial effects of exposing the soil to the air and to severe frost, which liberates potash, lime, and other mineral substances necessary to the health of the trees, are also lost to a great extent in grass orchards, consequently the trees bear well for a few seasons when in a young state, and afterwards rapidly decline in health and prosperity. Where previous directions have been carried out these trees will have had their branches thinned and all decaying and useless wood taken away. The roots should now have attention in order to restore fertility to the soil.

Commence by removing the soil about 3 feet from the main stem until some of the main roots are found, and then work outwards from the tree as far as the spread of the branches, working carefully with forks so as not to injure any of the roots; if these are down in a bad subsoil they may be carefully raised, doing one half and leaving the others until one or two years hence. If the soil is right they need not be dug up, but a good layer of farmyard manure should be spread over them about 9 inches in thickness, and the soil returned on the top of this—a mound will now be formed where the manure has been placed, but this will eventually settle down to the ordinary level, or nearly so—a good soaking of sewage or liquid manure occasionally during the summer months will help these trees considerably, especially in hot dry weather, and a great improvement in health will soon take place, which will in time give larger and more profitable crops, and well repay the cultivator for any extra attention he has given the trees.

PLANTING.—Proceed with any arrears of this as soon as weather permits, a short delay now will make almost a season's difference in the growth of the trees; have all of them mulched at once to prevent frost penetrating to the roots, and to keep them moist and warm when the March winds come make all secure when planting in order that the roots may start without being disturbed by the wind.

SCIONS FOR GRAFTING.—If not already cut off lose no time in securing them; lay them in firmly by the heels behind a wall or in some similar position where the sun will not reach them, and see that they have a moderate supply of moisture, and are correctly labelled. Strong young shoots made last season are the best, and they should always be taken from young vigorous trees if possible.

FRUIT FORCING.

PINES.—The plants recently started into fruit will, if in good condition at the roots, produce strong suckers. When the suckers are large enough to handle, all, except one to each plant, should have the growths checked by taking out the centres of those not wanted. To supplement the autumn-potted plants select others which have been wintered in 7 or 8-inch pots, choosing the most vigorous plants. The remainder of such plants should be reserved until the general spring potting, when they should be shaken out and treated like suckers. Procure fibrous loam with the herbage reduced, or if used fresh it should be placed where it will be heated so as to kill the grass and any larvæ it may contain, and when torn up in suitable compost add about a quart of soot to every bushel, and a similar quantity of superphosphate. If the turf has been laid up it must be had under cover some little time before using to become dried. Drain the pots moderately but efficiently, dusting with wood ashes or soot so as to exclude worms, and, keeping the plants well down in the pots, ram the soil firmly round the roots, leaving sufficient space to admit of copious supplies of water being given when necessary. For Queens, 10-inch pots, and 11 or 12 inches are suitable for those of stronger or more robust growth. A temperature of 60° to 65° will be sufficient for these plants, also for those potted last autumn, and 80° to 85° at the roots.

Plants in beds about to be started into fruit must not have the heat at the base of the pots over 90° or 95°, or their roots will be injured. If sufficient fruit be started to meet the requirements, later successional

plants may be advanced slowly, they, with autumn potted suckers requiring careful watering, especially where the heat is supplied by fermenting materials.

FIGS.—Earliest Forced Trees in Pots.—These are now in full growth, and will need the points of the shoots pinched off when they have made five leaves. Maintain the temperature at 55° to 60° at night and 65° by day, advancing to 75° with sun heat, closing early and allowing an advance to 80° or 85°. In dull weather a little extra fire heat early in the day will allow a little ventilation, if only for an hour or two to give a change of air, and this tends to solidify the growth. Keep the bottom heat at 70° to 75° steadily, introducing fresh leaves as required. Red spider must be kept down by syringing, but always sufficiently early in the afternoon to allow of the foliage becoming dry before night. In dull weather it is better to damp the paths than to keep the trees constantly dripping with water, which hinders evaporation and prevents the elaboration of the sap.

Early Forced Planted-out Trees.—These are growing, and must have a temperature at night of 55°, and 60° to 65° by day, with a rise of 5° to 10° from sun heat. Syringe twice a day on bright days, but on dull days morning syringing with damping in the afternoon will be sufficient, ventilating freely on all favourable occasions, as a weakly growth cannot afterwards be made stout, nor thin foliage become thick, therefore seek a sturdy growth, well developed, thick leathery foliage from the commencement. A little partially decayed lumpy manure placed on the border will attract the roots to the surface whilst not depriving the soil of air, and through the mulching waterings in a tepid state should be given as necessary, but avoid over-watering in the early stages, especially with liquid manure.

Second Early Forced Trees.—Usually a house of trees in pots and another of planted-out trees meet the requirements, as the Fig produces two crops in one season. Sometimes three crops are taken from pot trees, which is the surest way not to have early Figs the following year; in fact, Fig trees for very early forcing must not be burdened by a heavy second crop, but be given time to perfect the growths, and have a fair amount of rest before starting, otherwise they will cast all the first crop, and this is much the most valuable. Fig growers must not expect too much nor place too great reliance on pot trees for second crops, but supplement them by others or by trees planted out. Therefore, where there is more than one Fig house a second may now be started, and these will give a first and second crop of Figs. The trees bearing on extension growths produce grand fruits, those having fruited and become bare being cut out so as to give place to sturdy well-furnished growths, thinly disposed and kept clean. The trees must be put in order and dressed with an insecticide, but this is best done directly the leaves are all down. Bring the border into a thorough state of moisture by repeated supplies, if necessary, of tepid water or liquid manure. Syringe the trees occasionally, damping the paths twice a day. A temperature of 50° at night and 55° by day is sufficient to commence with, advancing to 65° from sun heat, ventilating freely on all favourable occasions.

CHERRY HOUSE.—Of all fruit trees, next to the Apricot, the Cherry is the most impatient of heat in the early stages of growth, particularly so when the ventilation is indifferently provided. This is a vital point, therefore commence ventilating at 50°, allowing an increase of 15°, with proportionate ventilation, closing the house at 50°, 45° being sufficient by day artificially, and 40° at night. The trees advanced slowly from December are now rapidly unfolding their buds, those previously forced being in blossom, and will need attention in fertilising the flowers on fine days, using a camel's hair brush. Where the flowers are not expanded it is well to fumigate the house so as to make sure that the trees are free from insects, repeating at intervals of a day or two. See that there is no deficiency of moisture in the border, giving a thorough supply of water when necessary. Trees in pots will require more frequent attention. Any alteration in the way of introducing fresh trees must be completed without delay, and taking precautionary measures, so that shading may be applied to such trees whenever sunshine is powerful, and in order to promote the re-establishment of such trees they should be lightly sprinkled more frequently and other surfaces moistened, but avoid saturating the soil.

MELONS.—A brisk bottom heat is necessary in the cultivation of early Melons, and it should be durable. Hot-water pipes are unquestionably the best, as they afford a regular and lasting heat, yet a good result can be had from fermenting material if due regard is paid to their preparation. Stable litter and an equal proportion of Oak or Beech leaves should be thrown together about a fortnight before they are required, thoroughly incorporating them, and if dry they should be moistened. In a few days it will be seen whether there is moisture enough to produce fermentation; if so, turn the materials before violent heat is produced, outside to inside, and damping any dry material, but in case the material is not heated quickly it must be turned after a few days and receive water as required. In making hotbeds always select a dry site or employ a good layer of fagots for the foundation, taking care to make the bed large enough for the season; 5 feet high at the back and 4 feet in front, with the material well beaten down, will not be too high. Place the frames on the bed, and in four days or so level the bed if necessary by adding the requisite quantity of fresh material, and place in the centre of each light about a harrowful of soil in the form of a flattened cone, the top about 1 foot from the glass. When the heat does not exceed 85° to 90° place out a plant in the centre of each mound, pressing the soil firmly around the ball, taking care not to injure the stem, and a little dry soot drawn in a ring round each plant will protect it from slugs. The day temperature

should be 70°, and 10° to 15° more from sun heat, losing no opportunity of admitting a little air to allow of the escape of rank steam or accumulated moisture; but in no case must the air be admitted so as to lower the temperature below 70°. The night temperature should be 60° to 65°, 5° more in mild weather. Instead of planting out too soon shift into larger pots as required, plunging them in a bottom heat of 80°, securing the stems to small stakes and rubbing off the laterals to the height of the bottom wire of the trellis. Plants for pits and frames should be stopped at the second rough leaf.

CUCUMBERS.—Cover dung frames with double mats at night, the linings of the beds being attended to weekly or fortnightly according to the state of the weather, keeping a supply of well mixed dung and leaves in readiness for that purpose.

Young plants are now ready for transferring to the hillocks in the Cucumber house, it having been thoroughly cleansed, and the soil placed in a few days previously to become warmed. Press the soil firmly about each plant, place a stick to each, and secure it to the first wire of the trellis. If bright sunshine occurs shade lightly in the middle of the day to prevent flagging, and after the plants become established it can be discontinued, subjecting the plants to the full influence of the sun. Keep the night temperature at 65°; 5° less on cold, and 5° more on mild nights; and 70° to 75° by day, with 80° to 90° from sun heat, closing early in the afternoon, with plenty of atmospheric moisture on fine days. Plants in bearing will need copious supplies of liquid manure in a tepid state. Crop lightly, and keep the plants clean. Avoid overcrowding, keep the foliage thin, remove bad leaves and exhausted growths, stopping others one or two joints beyond the fruit as space allows, maintaining a supply of young growths for successional bearing.

STRAWBERRIES IN POTS.—The early plants have thrown up the trusses strongly, especially La Grosse Sucrée and Vicomtesse Hericart de Thury, the earliest having set freely, and being well thinned are advanced in swelling. This should be accelerated in a temperature of 60° to 65° or 70° by artificial means, and 10° to 15° advance from sun heat, maintaining a genial condition of the atmosphere by dampings and light syringings on bright afternoons. When the fruit commences ripening a drier atmosphere will improve the flavour and colour of the fruit. Plants advancing to the flowering stage must not be hurried, 50° to 55° being ample by artificial means, and 60° to 65° with sun heat and free ventilation; but avoid cold draughts, especially directly upon the plants. More plants should be started without delay, such varieties as Sir Joseph Paxton, President, Noble, Auguste Nicaise, James Veitch, and Sir Charles Napier affording grand fruit, introducing along with these some of the early varieties, as La Grosse Sucrée, so as to secure the succession unbroken. Keep a sharp look out for aphides in the stages preceding flowering, fumigating upon their first appearance, for they insinuate themselves into the opening buds, and give much trouble unless promptly destroyed.

THE FLOWER GARDEN.

Dahlias.—Strong young plants with one clear stem are preferred to old stools and several shoots, and that whether extra fine exhibition blooms or quantities of flowers for cutting or otherwise are required. Instead, therefore, of planting, or may be dividing the old stools, the better plan is to start these in gentle heat, and strike cuttings from them. Set the roots closely together in a newly started vinery or other moderately warm house, covering all but the collars with moist soil. Numerous strong shoots will soon be formed, and these should be taken off with a heel when not more than 3 inches long. If left till they are too long to be taken with a heel—that is to say, till they are become hollow stemmed, they will not strike. Fill 3-inch or rather smaller pots with loamy soil, put a little sharp sand in the holes made for a cutting, and fix the latter firmly. Close frames and a moist bottom heat are not desirable, the cuttings striking most readily when set not far from hot-water pipes, or on an old fashioned flue in a moderately warm house. Cuttings thus raised and given one shift would make fine plants by the middle of May, but later struck plants do not require a shift. Dahlias can also be easily raised from seed, though a stock of named plants well selected is much to be preferred to seedlings, many of which are seldom worth garden room. Sow the seed in pans, place these in a fairly brisk heat, cover with squares of glass. Shade and keep the soil uniformly moist. When the seedlings are of good size, and before they spoil each other, either place singly in 3-inch pots or prick them out 4 inches apart each way in boxes of good soil. The plants in either case would transplant readily, and flower freely this summer.

Cannas.—These are among the noblest of bedding plants, and suitable alike for massing or for associating with other plants. Not only is their foliage of a highly ornamental character, but the flowers are also very effective. The dwarf hybrids are particularly good, the flowers of these almost rivalling Gladioli in size, the colours also being very bright and good. Of the older forms some of the best are C. Annei, Biborelli, Chatei sanguinea, grandiflora floribunda, nigricans, Warszewicz, and zebrina, all of which can be raised from seed. In order to be sure of the latter germinating quickly and well they must be soaked in water till they are swollen to double their original size. This may take place in a day or two, or it may be three weeks before they are sufficiently swollen and soft to place in soil. Bottles of water are most to be preferred, the seed being less likely to be left dry in these, and they may be either plunged in a brisk bottom heat or stood in the evaporating troughs or hot-water pipes. Sow the swollen seeds singly in 3-inch pots filled with moist warm soil and plunge in a moderate strong bottom heat. When these pots are filled with roots shift into 6-inch pots, using

a rich loamy compost, and with the aid of a little heat strong plants will be ready for bedding out early in June.

Clumps that have been kept through the winter may be started in heat as advised in the case of Dahlias, and when the growths are 2 inches or rather more in length, split up and divide so as to reserve a few strong roots with each shoot. Potted off singly they will soon become re-established, and a good stock of plants will be the result.

Pentstemons.—In order to be certain of perpetuating good named varieties cuttings ought to have been rooted last autumn, wintered in cold frames, and prepared for bedding out in April or May. Seedlings, however, are quite as beautiful as named varieties, a single packet of seed giving a large number of plants. Sow the seed at once on the surface of well prepared pans of soil. It is a good plan to moisten the latter prior to sowing the seed, covering lightly with fine soil. Place in a frame over a hotbed or in a fairly brisk heat, cover with squares of glass, and shade heavily till the seedlings appear. The latter being early, pricked out in pans or boxes of good fine soil, and kept for a time in gentle heat, will soon be large enough for hardening off, and if planted out in beds or borders of well prepared soil by the middle of May, a fine display will be made this season.

Antirrhinums.—These should be raised from seed as advised in the case of Pentstemons, and, in common with the latter, will not prove very showy if the seed-sowing is much longer deferred or the seedlings are neglected. Antirrhinums can be had in separate colours, and by good treatment will make a grand display, a dry season not militating severely against them. The best whites are particularly effective and serviceable for cutting from.

Sweet Peas.—Where many cut flowers are required early Sweet Peas ought always to be raised under glass and planted out. The newer varieties are particularly good for cutting, and seeing that the seed is dear and distributed in small quantities these, in any case, ought not to be trusted in the open ground. Fill the requisite number of 3-inch pots with good loamy soil, and in each sow seven or eight seeds. These germinate surely and quickly in gentle heat, but the plants ought soon to be hardened and planted with their balls of soil and roots intact where they are to flower. Rows or patches of seed of the common varieties may also be sown in the open at much the same time as the earliest garden Peas. Grow plenty of the old white, and abundance of a good scarlet variety is always appreciated.

Mignonette.—Much that has been advanced concerning Sweet Peas is also applicable to Mignonette. Enemies of various kinds render it next to useless to sow seed early in the open, but a few dozen plants, raised in small pots and planted in good soil before they become badly root-bound, will give off early spikes of flower, and perhaps keep flowering strongly all the season. Garraway's White ought to be grown everywhere.

PLANT HOUSES.

Chrysanthemums.—As these become rooted harden them if they have been under handlights, and place them on a shelf close to the glass, to prevent their being drawn up weakly. If in thumb pots be careful the soil does not become dry, and when the plants are well rooted transfer them into 2½-inch pots. They will grow sturdily if placed where the temperature does not fall below 40°. Cuttings must still be inserted; where the plants are required to produce large flowers place them singly in small pots. Those for ordinary decoration may be inserted thickly in boxes, and covered with a square of glass. Early and late flowering varieties are very useful where cut flowers are largely in demand. Good supplies of the former should be rooted; there is no hurry about the latter, and we rarely root the whole stock of these before March. As the old stools are thrown out wash the pots and store them away ready for the time when they will be wanted. A note should be made of any extra pots that may be needed, so that there will be no delay at potting time. Sort the stakes, and provide fresh ones in the place of those too short. If these are to hand they can be painted in readiness, while work outside is at a standstill.

Mignonette.—Fill 5-inch pots with a compost of three parts fibry loam, the other part being composed of leaf mould and sand with one-seventh of decayed manure. Make the surface even, and sow seed of a good strain evenly, cover the seed with fine soil, and water with a fine-rose can. If the pots are placed in a vinery just started the seed will soon germinate; gradually harden and place them on a shelf close to the glass, where the temperature will not fall below 45°. Thin out, if necessary, those raised from seed sown early in September. Keep these as cool as possible. If any of the plants are growing weakly pinch out the points. Be careful that they do not become dry at their roots. Standards and pyramids, where the flowers are not needed, may be removed, and the growths tied down; give these a little artificial manure to the surface of the soil, water carefully, and keep the plants standing on a moisture-holding base.

French and Fancy Pelargoniums.—Pinch out the points of late-rooted cuttings and place them into 5-inch pots. Use for a compost fibry loam, sand, and one-seventh of manure. Place the plants on a shelf, keep them cool, and water carefully. Pinch all shoots on plants that need it that are not required for early flowering. Some of these will need repotting, and in doing this press the soil firmly to prevent soft leafy growth. All that is needed at present is to keep the plants slowly moving. Although they need careful watering do not keep them so dry as to injure their soft, active roots. Watch for aphides, and fumigate at once upon their first appearance.

Zonal Pelargoniums.—Bushy little plants in 3-inch pots may be placed into 5-inch size, using the compost advised above. Merely keep them growing, but do not pinch their shoots. As soon as the days

lengthen they will bear gentle heat and come early into flower. Select from amongst those that have been flowering dwarf free-flowering varieties, and if these are given a little artificial manure to the surface and kept slowly moving they will not be long before they commence to flower again. Those that need cutting back should be kept rather dry. Place all that have done flowering and need pruning in a cool house, and give them little or no water; if cuttings are needed from them early they will root all the better and be much less subject to damp if moderately firm than if they are soft.

Calceolarias.—Give the earliest plants their final shift. Use a moderately light but rich compost, keep the plants cool and on a moisture-holding base. Repot successive plants as they need more root room. Do not allow them to become dry or keep them in a dry atmosphere, or they will soon be attacked by aphides.

Cinerarias.—For those in small pots that are required for flowering in May a small shift only is necessary. Keep the plants cool, only be careful that the foliage does not suffer from damp. They will be safe in the greenhouse where fire heat is used to keep out frost and occasionally to expel damp. Water those throwing up their flower spikes with soot water in a clear state.

Primulas.—Place in 3 or 4-inch pots those required for late spring flowering. Keep the plants cool, but in a position where they will be free from damp. If close or confined they suffer from damp, the foliage draws up weakly, and the plants flower imperfectly. Sturdy growth must be aimed at, and the result is abundance of large flowers.

Carnations.—Fumigate at once if aphides attack the points of these plants. Miss Jolliffe will continue to unfold its flowers if the temperature in which they are grown does not fall below 45° at night. Autumn rooted plants in small pots may be placed into 5-inch size. Well rooted layers of *Souvenir de la Malmaison* and other varieties may also be placed into 5 and 6-inch pots. If these are kept where frost can be excluded they will continue to root and make slow growth. Watch for any brown fungoid growth on these plants. The only remedy is to move infested plants, and scrape out with the point of a knife every trace of the disease, and then dust the affected part with sulphur. If a solitary plant only is attacked it will be wise to burn it at once. A sharp look out should be kept for this disease; if allowed to spread it will quickly destroy the plants.

Lilium Harrisii.—Watch for aphides, they are liable to attack the points of the plants; fumigate at once if they are observed. It is surprising how quickly they cripple the foliage. If the plants are not needed in flower quickly keep them close to the glass, where the temperature is about 40°. If given intermediate treatment they soon run up to a height of 4 feet or more. This cannot well be avoided if they are wanted in flower early. As soon as *L. eximium* has grown through the plunging material place them on a shelf close to the glass in a perfectly cool house. African grown bulbs of *L. Harrisii* appear to be of larger size than those grown in America, and as they are issued about Whitsuntide they will prove invaluable for flowering during the closing weeks of the year.

THE BEE-KEEPER.

APIARIAN NOTES.

THE temperature has risen to 50°; Hellebores are in flower, Arabises are coming, the earliest Snowdrops are advancing, and the bees are preparing to take advantage of all, many of our hives have indeed already been in full flight.

CARNIOLIANS.

As usual, these have wintered satisfactorily, scarcely a dead bee to be seen, and all is dry within. The *débris* lies on the under floor, and there is nothing to adhere to the bees, so they can take a flight without loss of time cleaning themselves, and return to their hive in safety. Young bees have appeared, but we have not learned yet where the drones are that clustered with the bees in December.

PUNICS.

These have given me the most concern, but I am glad to say their wintering qualities are as satisfactory as their summer doings.

The hive that I alluded to two weeks ago as showing signs of abdominal distension has, it appears, had only a few bees so affected, probably young ones that were bred too late. The dead bees at it are under 500, and there are more bees in it now than there were in December. The bees are down to the entrance, and at a temperature of 46°. I put my finger to it, and the heat coming therefrom felt to be 65°.

The other pure Punic had less than 100 dead bees. I shall

be glad to hear results from other apiaries where the Punic bees are kept.

FOREIGN BEES.

Since the year 1859–60, when Messrs. Neighbour introduced the Italian Alp bee, there have been no less than nine or ten varieties of foreign bees introduced into this country. Through some mistake in my essay I am made to say that Mr. Woodbury was the introducer of the Italian Alp bee. He might be so in the sense that he was successful with his first one, but it was through Mr. Neighbour's agency that Mr. Woodbury came into possession, hence this explanation. I have had eight varieties in all, and so far as it has gone I am most in love with the Punics. The Italian Alp bee I never would have given up had they been imported pure—that is principally the cause of this article.

When the Cyprians and Syrians were imported into this country through Jones and Benton, Abbott extolled these bees to a great extent, both in his journal and in private letters, as good workers and highly coloured, some of them having fine yellow bands. Two of these queens came into my possession, but neither on the bees accompanying the queens, nor yet upon their progeny, could I discover more than two yellow, or, as Herman styled them in the Italian, "orange red girths." They differed in no respect from those of the same breed I had years previously. Nor have I ever had the good fortune to see any possessing more than two entire girths. I have observed some with more or less yellow on the posterior segments, but nothing more than mere rudimentary markings of yellow.

Carniolians began to arrive as well marked with yellow as Syrians, and Italian Alp bees that could not be distinguished from Syrians and Cyprians. In short, the importations proved beyond a doubt that breeders were taking no care of keeping distinct varieties in their original purity.

Herman gives us the geographical location of these bees, with the statement that they are only to be found in "the extreme north of Italy, that is the Italian Switzerland where they have preserved their purity;" and that owing to the situation and almost perpetual snows they could not get crossed with any other race. That they are not to be found pure outside that range or locality. There has been much fruitless discussion both in this country and America as to whether the Italian Alp bee is a pure variety, some holding that it is and others not, and the same assertions are made on behalf and against the British bee. We need not bother with what we will never find out. The original British bee does not always breed to a fixed type. Before the introduction of the Italian Alp bee in 1859 yellow girths were occasionally found upon some of them, and all of them the rudimentary yellow on the first ring; besides that variation some colonies were lighter in colour than in others, which some people took for a distinct variety, but the mating of queens with drones from a great distance proves this impossible.

The basis upon which much of the discussion in this country sprung was regarding the variation of drones from one queen. In America it is because of the variation of the workers. In both countries they failed to grasp the question. In the former case they tried to prove the Italian bee was not pure, because of drone variation. In the latter, because the workers varied.

Drones of all varieties differ in colour. When we attempt to prove the impurity of any race by drones we look into other characteristics and not colour, and we have no difficulty in tracing impurity in any variety by markings of the workers. Herman speaks of two orange coloured girths, and never of more. Doolittle of America contends the Italian Alp bee is not pure, because its workers vary in colour. Root, while agreeing with us that "five-banded" Italian bees are crossed ones, he says that Doolittle's five-banded ones are pure!

My own opinion is that there are very few pure Italian Alp bees in either this country or America. My proof is, I take Herman's evidence first, then my own. When I received my first Italian Alp bees they were, as Herman described, "slender form, light chrome-yellow colour, with light brimstone-coloured wings, and two orange-red girths each one-sixth of an inch wide." By and-by they came of a more dark colour and unlike the first imported ones, and loud complaints were made against them as being crosses, and later on came the undeniable crosses of Italian-Cyprian. Of the first named I could not say I could detect crossing further than that they had not the beauty of the first imported ones.

My investigations revealed the fact that the queens were bred in apiaries far from the Alps, and in the neighbourhood of crosses and common bees; neither in Germany, Switzerland, nor in Lower Italy were the pure race to be found. On further investigation I discovered the drones of some of these queens to be identical to the common black or brown drones, being the progeny of a queen bred from one fertilised by a black drone, but she having mated with a drone of Italian blood. I think the foregoing explanation is sufficient to reveal the facts and arouse bee-keepers to the sense of taking steps to secure all breeds or varieties in their original pure state.

In a standard geographical work published in 1856 it says, "Africa possesses no useful insects, but has instead the locust, scorpion, termite, and scarabæus of ancient Egypt, and yet we have the Punic bee from that country." I have not the work before me, so cannot quote, the book being lent, but it mentions yellow-striped bees being in this country more than a century ago. What race could it be?—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Pitcher & Mander, Hextable, Swanley.—*Catalogue of Chrysanthemums*.

Webb & Sons, Wordsley, Stourbridge.—*Annual Catalogue of Farm Seeds, 1892*.

Vilmorin, Andrieux, & Cie., 4, Quai de la Megisserie, Paris.—*Catalogue of Seeds (illustrated)*.

H. Cannell & Sons, Swanley.—*Floral Guide (illustrated), 1892, and Catalogue of Seeds*.

James Yates, 29, Little Underbank, Stockport.—*Catalogue of Vegetable and Flower Seeds*.

D. S. Thomson & Sons, Wimbledon, Surrey.—*Catalogue of Garden Seeds*.

R. C. Notcutt, Broughton Road Nursery, Ipswich.—*Catalogue of Chrysanthemums and Hardy Perennials*.



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Shading for Greenhouses (*F. T., York*).—We do not understand your letter, and it appears probable that you have sent us one intended for another person. We do not supply samples or patterns of material advertised in our columns.

Cattleya Trianae (*G. A.*).—It is only a moderately good variety, and there are many greatly superior both in form and colour. The flower sent is not of very good shape, and the lip is small, but the colour

is rich. Possibly if the plant is small or recently imported it may gain strength and the flowers improve.

Rose Growing for Sale.—**Use of Frames** (*P. N.*).—Your questions were answered elsewhere a few weeks ago, but as you seem to want further information you should acquire knowledge by serving a time in some nursery where Roses are made a speciality. "Rose Growing," by Duncan Gilmour, jun., may afford the information you require. It may be had, post free, from this office, for 1s. 1d. The frames used for Violets, Christmas Roses, and Lily of Valley in winter, may be employed in summer in many ways, upon which you must exercise discretion as to what is most likely to be profitable—such as forwarding plants from seed and cuttings. They would also be advantageously employed in growing Cucumbers or Tomatoes.

Peacock Iris (*New Subscriber*).—You will find the information required in the present issue, page 79, and the illustrations, figs. 12 and 14, will convey to you an idea of the floral character of the Peacock Irises which are included in the genus *Vicusseuxia*.

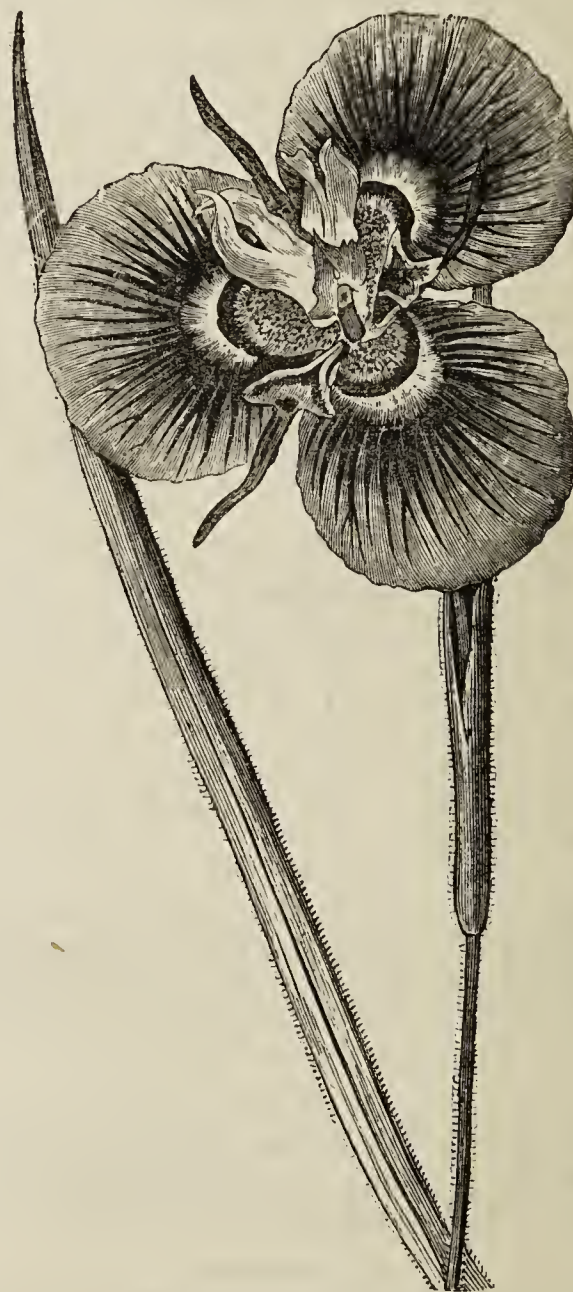


FIG. 14.—VICUSSEUXIA VILLOSA.

Scale on Peach and Plum Trees (*W. C.*).—There is no better plan than the application of an insecticide with a brush, which is tedious but sure. Dusting the trees whilst damp with quicklime will certainly destroy the live scale upon which it falls with sufficient strength to scorch it, and it may be safely used without any fear of injury to the trees, as the lime will benefit them through some falling on the ground. Softsoap and petroleum is also a good remedy, four gallons of water (hot), 8 ozs. of softsoap dissolved in it, and one-third of a gill of petroleum mixed with it by churning with a syringe or engine into the vessel for about five minutes, and then applying to the trees with a syringe or engine through a spraying nozzle, taking care to keep the mixture well mixed whilst being applied, and thoroughly wet every part. The mixture may be applied with an ordinary syringe, only keep the petroleum well incorporated with the soapy water, alternately ejecting it into the vessel and on the trees.

"U" System of Training Peach Trees (*F. S.*).—We have found this system of training answer admirably for Peach and Nectarine trees, both outdoors and under glass. The trees are usually planted 4 feet apart, but we consider 5 feet more suitable, the end tree 2 feet 6 inches from the end of the wall or trellis and then 5 feet apart, so that the uprights—two from each tree—are 2 feet 6 inches asunder, and the shoots for bearing are 12 inches apart on both sides of the uprights.

This is not too much space to allow of all the growths being properly exposed to light and air. The "U" system of training is fully described and figured, from the maiden up to the fruiting tree on a 10-feet high wall, in the *Journal of Horticulture*, vol. xiii., third series, pages 252 and 253. Two branches are the most suitable; indeed, it would not be a "U" if you had four branches, but a four-branched upright. The trees answer well as single upright cordons, planted 2 feet 6 inches apart, and the "U" is simply a double upright cordon.

Seeds Required for Garden Plots (C).—The following seeds and space the quantities named may occupy has been determined by experiments, the seeds being good and uniformly covered at a proper depth in suitable soil:—Asparagus, bed of 15 square yards, $\frac{1}{2}$ pt.; Beans, Broad, per row of 80 feet, 1 qt.; Beet, row of 50 feet, 1 oz.; Broccoli, per 4 square yards, $\frac{1}{2}$ oz.; Brussels Sprouts, per 4 square yards, $\frac{1}{2}$ oz.; Cabbage, bed of 8 square yards, $\frac{1}{2}$ oz.; Carrots, drill of 120 feet, 1 oz.; ditto, bed 12 square yards, 1 oz.; Cauliflower, 4 square yards, $\frac{1}{2}$ oz.; Celery, 4 square yards, $\frac{1}{2}$ oz.; Cress, 3 square yards, 1 oz.; Endive, 4 square yards, $\frac{1}{2}$ oz.; Kale, 4 square yards, $\frac{1}{2}$ oz.; Kidney Beans, row 30 feet, $\frac{1}{2}$ pint; Leek, 2 square yards, $\frac{1}{2}$ oz.; Lettuce, 4 square yards, $\frac{1}{2}$ oz.; Mushroom, 7 square yards, 1 bus.; Onions, 9 square yards, 1 oz.; Parsley, row 80 feet, 1 oz.; Parsnip, drill of 200 feet, 1 oz.; Peas, early, row of 60 feet, 1 pint; Peas, large, late, row of 80 feet, 1 pint; Potatoes, row of 30 feet, $\frac{1}{4}$ pkt.; Radishes, 4 square yards, 1 oz.; Savoy, 4 square yards, $\frac{1}{2}$ oz.; Spinach, 10 square yards, 1 oz.; Spinach, drill of 120 feet, 1 oz.; Turnip, 4 square yards, $\frac{1}{2}$ oz.

Primula mollis (W. B.).—Yes, there is a Primula bearing the name you give, and the plant has been described in this Journal by one who cultivates Primulas largely as follows:—"The soft-leaved Bhotan Primrose is included by many botanists under the large section 'Primulastrum,' but we prefer for simplicity M. Stein's plan of classing it in 'Cortusina,' in company with *P. cortusoides* and its forms and the new *P. Kauffmanniana*. The latter classification seems the best as far as affinity goes, besides being much more convenient for cultivators. *P. mollis* is one of those Primroses which it is almost hopeless to attempt cultivating in the open air in this country—not so much from the cold, as we believe it is found at fairly high elevations, but from damp, caused by fog, &c. We have tried it in the neighbourhood of London under almost all the conditions conceivable, sometimes with apparent success, but which invariably ended in failure. Even under glasses and overhanging ledges it was found to have decayed. We winter it successfully in a dry cool frame, airing freely on bright days and watering only when very dry, and even then care is required to keep the water from lodging about the woolly crown. We succeed with it best in pots, having given up planting it out, and as it is a quick coarse grower it requires plenty of pot room and plenty of feeding. It makes a charming greenhouse plant when well grown, and it not uncommonly produces from twenty to thirty flower stems, each averaging from four to five whorls of its large bright flowers, presenting with the densely hairy foliage a really magnificent sight. If flowered early in good seasons it produces seed, but it may also be readily propagated by division of the crowns in winter. The foliage all rise from the root, the leaves on long petioles entirely covered with curious spreading hairs, the blade almost round in outline with a cordate base, and lobed and crenated margins, veined or reticulated. The flower stems vary from 12 to 18 inches in height, the flowers being arranged in whorls; the corollas about an inch in diameter, of a bright rose or brick-red colour; the petals deeply lobed; the calyx campanulate, hairy; the teeth short and broad at the base. It flowers from April until the end of July. It was found in the Bhotan Mountains by Mr. Booth about 1852."

Culture of Begonia odorata (J. R. S.).—The Begonia to which you refer is *B. odorata*, which is well suited for growing into neat little plants in small pots for winter flowering. The fragrance from its pure white flowers, which are borne in large trusses, is very agreeable. The details of culture are simple, and if you possess a warm house during the winter and suitable convenience during the summer months you can grow this Begonia to perfection by following the method of culture here described. Towards the end of the present month take short stout cuttings about 4 inches long, insert them in sandy soil singly in small pots, or about four in a 3-inch pot. Plunge the pots in a gentle bottom heat in the propagating house or under a handlight in the Cucumber or Melon house, where the temperature does not fall below 65°. When well rooted transfer the plants into pots one size larger, using soil two parts loam, one part peat, a dash of bone meal, and some sand. Place the plants on a shelf close to the glass, where the growth will be of a stocky short-jointed nature. When the plants are 6 inches high top them by pinching the point from each to induce side branches and suckers from the bottom, which make the strongest growth. When the pots are again filled with roots transfer into larger pots, 48 or 32 sizes being very useful where the plants are required for vases in the decoration of rooms. Keep the plants on the shelf close to the glass during the summer, where the temperature does not fall below that indicated. Supply water to the roots freely, so that the foliage is retained in a healthy green state, alternating the supply with weak liquid manure when the pots are filled with roots. No more pinching will be needed, as from the first topping from three to six branches will be produced; the numbers of each will guide the cultivator as to the size of pots required. One stake to each plant, fixed in the centre, to which each branch may be loosely looped, or one stake to each stem may be used at will. The stems are rather short and firm in themselves, but a slight support may be of service to prevent accident. Moderate shade during the hottest

part of the day during the summer months will assist in preserving healthy foliage. Towards the middle of September the shade may be dispensed with altogether, as after that date what sun there is will aid in ripening the growths, and the plants will flower more freely. Directly after Christmas the plants will commence flowering, and will continue for two or three months, the plants reaching the height of from 1 foot 6 inches to 2 feet 6 inches.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. S.*)—1, *Nephrolepis davallioides*; 2, *Nephrolepis tuberosa*; 3, *Platynerium aleicorne*; 4, *Lindsaea cultrata*. (*W. W. R.*)—1, *Adiantum decorum*; 2, *Adiantum trapeziforme*. (*M. T.*)—1, *Odontoglossum Sanderianum*; 2, *Masdevallia Lindenii*; 3, *Masdevallia triangularis*.

COVENT GARDEN MARKET.—FEBRUARY 3RD.

BUSINESS remains as last week with Grapes a poorer trade.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	4	0	Grapes, per lb.	1	6	3	0
Apples, Canada and Nova Scotia, per barrel ..	12	0	18	0	Lemons, case	15	0	2	0
Cobs, Kent, per 100 lbs. ..	35	0	40	0	Oranges, per 100 ..	4	0	9	0
					St. Michael Pines, each ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	4	0	6	Mustard and Cress, punnet ..	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0
Coleworts, dozen bunches ..	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	2	0	3	6	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	6	0	9	0	Maidenhair Fern, dozen bunches	4	0	9	0
Azalea, dozen sprays	1	0	1	6	Mignonette, 12 bunches ..	1	6	3	0
Bouvardias, bunch	0	6	1	0	Mimosa or Acacia (French) per bunch	1	0	2	0
Carnations, 12 blooms ..	2	0	3	0	Narciss (French) dozen bunches	3	0	6	0
Christmas Roses, dozen blooms	1	0	1	6	Pelargoniums, 12 bunches ..	9	0	15	0
Chrysanthemums, dozen blooms	0	9	3	0	" scarlet, 12 bunches ..	6	0	9	0
Chrysanthemums, dozen bunches	4	0	12	0	Poinsettia, dozen blooms ..	4	0	9	0
Cyclamen, dozen blooms ..	3	0	6	0	Primula (double) 12 sprays ..	0	6	1	0
Eucharis, dozen	6	0	9	0	Roses (indoor), dozen ..	1	6	3	0
Euphorbia jacinthiflora dozen sprays	3	0	6	0	" Red, per doz. blooms ..	2	0	4	0
Epiphyllum, dozen blooms ..	0	6	0	9	" Tea, white, dozen ..	1	0	3	0
Freesia, dozen sprays	4	0	6	0	" Yellow, dozen	3	0	6	0
Gardenias, per dozen	4	0	8	0	Tuberose, 12 blooms	1	0	1	6
Hyacinths, dozen spikes ..	6	0	9	0	Tulips, dozen blooms	1	0	2	0
Hyacinths (Roman) dozen sprays	0	6	1	0	White Lilae (French) per bunch	6	0	7	6
Lilium longiflorum 12 blooms	6	0	9	0	Violet Parme, French behs. ..	4	6	5	6
Lilium (var.) dozen blooms ..	2	0	4	0	" Ozar	2	6	3	0
Lily of the Valley 12 sprays ..	1	0	2	6	" small bunches	2	6	3	6
Marguerites, 12 bunches ..	3	0	4	0	" English, dozen bunches	1	6	2	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitae (golden) dozen ..	6	0	12	0	Ferns, in variety, dozen ..	4	0	18	0
Azalea, per plant	2	6	3	6	Ficus elastica, each	1	6	7	0
Chrysanthemums, per doz. ..	4	0	9	0	Foliage plants, var., each ..	2	0	10	0
" large, doz.	12	0	24	0	Hyacinths, per dozen	6	0	0	0
Cyclamen, per dozen	12	0	18	0	Lily of the Valley, per pot ..	2	0	2	6
Dracæna terminalis, dozen ..	54	0	42	0	Marguerite Daisy, dozen ..	6	0	12	0
" viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0
Epiphyllum, per pot	1	6	2	6	Palms, in var., each	2	6	21	0
Erica gracilis, per dozen ..	9	0	12	0	Pelargoniums, scarlet, doz. ..	4	0	6	0
" hyemalis, dozen	12	0	18	0	Poinsettias, per dozen	9	0	15	0
Euonymus, var., dozen	6	0	18	0	Solanum, per dozen	9	0	12	0
Evergreens, in var., dozen ..	6	0	24	0	Tulips, dozen pots	7	0	9	0



FARMHOUSE DAIRIES.

So low pitched that one could hardly stand upright, a drain under the floor in connection with the yard drains, a useless partition, low doorways, access from without only through the

kitchen and along a dark narrow passage, windows low down with casements opening outwards, entirely without means for the exclusion of insects, an uneven badly paved floor, white-washed walls, whey drained into pails and carried out by hand; a storeroom adjoining, but with no entrance from the dairy, bad shelving, bad light, and faulty provision for ventilation.

Such was the dairy of a Stilton cheese farm which we were recently asked to inspect and alter. The faults were as obvious as serious. The remedy was equally clear. A separate dairy drain was made, and taken alone well away from the house to a main drain. As showing how necessary watchfulness is about such work, we may mention that after giving the builder strict orders for this separate drain, we found him actually having a trench opened to connect it with the yard drains again at another point. We at once sent an estate foreman with some men to open a trench in the right direction, and to see that the dairy drain was made as we wished. The outfall for it and the yard drain is now into one side of a manhole, from the other side of which the main drain runs. The dairy drain is also carefully trapped, so that all risk of foul gases entering the dairy is at an end.

The floor is levelled and repaved with small square tiles, the walls faced with white glazed tiles, the ceiling raised as there was ample space above the old ceiling. New windows, with sliding sashes and ventilators covered with finely perforated zinc are placed at a convenient height in the walls; old partitions are removed; doorways made from without, from the kitchen and into the storeroom; proper stands made for the curd pans, with a gutter below connected with a trapped pipe laid underground to a whey cistern close by the piggeries; the storeroom has also new shelves, new windows and good ventilators. The outer door opens into a covered way leading to the kitchen, wash-house and cheese room. The milk is now taken into the dairy by the covered way, tramping through the kitchen with muddy boots being at an end.

We have thus obtained two clean, well drained, thoroughly ventilated apartments, which might just as well have been made in the first instance, but builders of such places a hundred years ago apparently brought little if any common sense to bear upon their work. Useless passages, unnecessary divisions, low ceilings, bad drainage and ventilation prevail in old farmhouses, the production of good butter being practically impossible under such adverse conditions. Many a similarly faulty old dairy have we had to remodel, and much money has been spent upon the construction of large rooms for milk pans. Cream separators now render large dairies unnecessary, more cream, and consequently more butter, being obtained by means of the separator, which requires little space, dairy work being thus rendered more expeditious, more certain, less laborious, and certainly more profitable than heretofore.

Frequently are we asked to advise owners of property about such alterations, which tenants are quite justified in asking for, but which cannot be done by line and rule. Many things have to be taken into account in this matter. Is the tenant doing what is best, or does he intend doing so? The whole thing must be treated solely on business lines, and not from a fanciful or sentimental point of view. If the establishment of a factory appeared probable we should then not think it advisable for a landlord to spend money upon old dairies, or in building new ones. In the mutual interest of himself and his tenants he had much rather either take shares in a factory company or set it going himself. For something like £1000 he may do the latter and also much besides in helping tenants to improve their breed of cattle.

In nothing is reform more desirable than in the breeding and selection of cows. What is wanted is a cow yielding

yearly say 800 gallons of milk that is really rich; the ordinary cow often does not yield more than half that quantity, and the quality is also inferior. Given improved cows the temptation to try and produce better butter would be great. The point to consider is profit, which after all is a simple matter of calculation. What we have to consider here in regard to it is whether or not a general alteration and improvement of farm house dairies is desirable. It is not when the milk can be sold at a fair profit to a factory within a distance of only a few miles of the farm. Then farmhouse work and marketing is considerably reduced, for there is no setting or separating of milk, no churning, no taking of butter to market, no uncertainty. There is a steady demand for milk always, very little fluctuation in price, and none of the anxiety and uncertainty which is inseparable from butter making in farmhouse dairies.

WORK ON THE HOME FARM.

There has been enough of frost and snow to do much good to land ridged up last autumn, and a friable seed bed is a resultant certainty. February will soon be gone, and we shall do well to be ready to seize the first opportunity for sowing spring corn and seeds. Sow no inferior seed, but have it good and clean. Have also the manure ready to sow with it, and then you will have a fine seed bed well stored with fertility, good seed, early sowing, work out of hand, thoroughly well done with very little labour. Compare such sound practice with that of the man who has only ploughed his land gradually during the winter; clearly he will have to wait for March winds to dry his furrows, and it may be for April showers to soften them. It is just such laggards who cry out about weather and bad seasons; their work is never sufficiently advanced to enable them to take advantage of early chances of sowing. Both last spring and last autumn examples of this were numerous enough. A brief spell of fine open weather occurred early in both seasons. Those who were ready got in their corn, those who were not ready lost their chance, and it did not occur again for a long time. Many a farmer has not sown his Wheat because of a wet autumn and winter, but had the land been ready in September sowing might have been done.

It is a good plan to purchase enough chemical manure for the season now, only there must be a sound building, with a hard dry concrete floor for storing it. By procuring it in bulk full advantage is taken of ton rates. For grass use 1 cwt. nitrate of soda, $1\frac{1}{2}$ cwt. superphosphate, $\frac{1}{2}$ cwt. muriate of potash, 1 cwt. common salt per acre. Apply this dressing at the end of the month, mixing only a few days before using. On light shallow soils three or four times the quantity of salt may be used with advantage. For Tares, Peas, and Beans, 4 cwt. superphosphate and 2 cwt. basic slag per acre is sufficient, no nitrate of soda being required for such crops, the only possible advantageous addition being $\frac{1}{2}$ cwt. muriate of potash where land is known to be deficient in potash. For sowing with spring corn, 1 cwt. nitrate of soda, $\frac{3}{4}$ cwt. muriate of potash, $\frac{1}{4}$ cwt. steamed bone flour, $\frac{1}{2}$ cwt. superphosphate. Apply the same mixture as a top dressing for Wheat. For Swedes, $\frac{3}{4}$ cwt. muriate of potash, $\frac{1}{2}$ cwt. nitrate of soda, $3\frac{1}{2}$ cwt. steamed bone flour, 14 tons farmyard manure. For Mangolds, $\frac{3}{4}$ cwt. muriate of potash, $1\frac{1}{4}$ cwt. nitrate of soda, 2 cwt. steamed bone flour, 1 cwt. common salt, 14 tons farmyard manure.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1892. January.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun	On Grass.		
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 24	30.098	47.7	47.1	N.	37.2	50.0	44.3	78.9	42.2	—	
Monday .. 25	30.431	33.1	33.0	N.W.	37.2	43.8	30.8	71.0	25.8	—	
Tuesday .. 26	30.502	31.4	31.3	S.W.	36.1	45.2	28.4	51.8	24.6	0.010	
Wednesday .. 27	30.103	44.9	43.6	S.W.	36.7	47.6	30.9	48.8	28.4	0.110	
Thursday .. 28	30.293	37.4	35.1	N.W.	37.9	50.0	35.3	51.6	30.5	—	
Friday .. 29	30.079	49.7	47.7	W.	38.9	52.0	37.2	57.2	35.1	—	
Saturday .. 30	30.167	47.7	44.7	W.	40.2	51.3	45.6	65.0	41.6	0.048	
	30.239	41.7	40.4		37.7	48.6	36.1	60.6	32.6	0.168	

REMARKS.

24th.—Showery early; continuous sunshine after 10 A.M.
 25th.—Brilliant throughout.
 26th.—Hazy early; a little sun in morning; cloudy afternoon; drizzle and slight showers in evening.
 27th.—Overcast morning; wet from 3.45 to 9 P.M.; bright night.
 28th.—Bright early, and a little sun at 11 A.M., otherwise cloudy throughout.
 29th.—Cloudy throughout.
 30th.—Fine with frequent sunshine in morning; cloudy afternoon.
 A variable week, but with mean temperature nearly 5° above the average.—
 G. J. SYMONS.



SIMPLE though this matter undoubtedly is, success or failure in the cultivation of plants grown in pots is largely dependent upon the manner in which the operation is performed. It is one of the first practices that a garden lad is initiated into, and when trained to perform it in an efficient manner a good groundwork is laid upon which to build up future successes as the young aspirant advances in his profession. The two cardinal points to be remembered are, to provide efficient drainage to allow superfluous water to pass quickly away, without restricting more than is necessary the amount of space available for holding the soil in which the plants are to be grown, as the great aim of all cultivators should be to obtain the best possible plant in whatever sized pot is used.

All points considered broken pots are perhaps the best materials to use for drainage, and they have the advantage, in one sense, of being plentiful enough in most gardens. Where, however, there is a scarcity of these, cinders sifted into various sizes are an excellent substitute, especially for small pots, where only a small quantity of drainage is wanted. Quick-rooting plants seem to have a surprising partiality for this material; wherever it has been employed for drainage I have invariably found, when turning the plants out of their pots, that large numbers of roots had penetrated it.

When preparing crocks for drainage a good quantity should be broken up moderately small, and then assorted into three sizes in the following way:—Take three sieves, with 1 inch, half-inch, and quarter-inch meshes, place the one with the smallest meshes at the bottom, the next size above it, and the largest on the top. The broken potsherds should then be placed in the top sieve and be sifted, the smaller parts falling through the meshes into the next sized sieve, this in turn to be treated in a like manner, and that which falls through into the bottom one to be sifted as soon as a sufficient quantity has accumulated. Three useful sizes of potsherds are thus obtained. If space in the potting shed permits it, three spaces against the walls should be partitioned off with boards to hold the prepared crocks, as potting operations are greatly facilitated by always having a stock in readiness, and the preparation of them can be carried on at odd times. The crock dust which falls through the smallest sieve I have for years found useful for mixing with many kinds of potting composts to keep them open, and I therefore advise that it should also be taken care of and stored in a large pot or box.

The depth of drainage necessary for various sized pots varies according to the class of plants grown in them. For ordinary plants grown in pots ranging in size from 6 to 16 inches in diameter, if from one-fourth to one-third of the depth of the pot is filled with drainage it will be found sufficient; but in the case of such things as *Alocasias*, *Marantas*, and *Anthuriums*, unless they are grown in pans, which are more suitable for them, fully one-half the space ought to be taken up with drainage. When crocking very large pots, one or more small pots inverted and placed over the bottom economise crocks and lighten the weight of the combined bulk. It is important in the crocking of all pots that a large hollow potsherd be placed over the aperture at the bottom to allow the water to escape freely, and prevent smaller pieces from clogging the outlet. A layer of moderately large pieces should then be placed over this, and the remaining portion set apart for drainage, half filled with the largest sized materials already prepared, next a coating of a smaller size, this being finished off

and made level with the smallest crocks. This forms a medium through which water gradually and evenly filters, and thus accomplishes the object in view. For placing over the drainage before any compost is added, I prefer moss to all other materials where a lasting substance is needed, but in the case of plants potted annually spent Mushroom bed manure or leaves.

In the growth of such plants as *Pelargoniums*, *Fuchsias*, *Begonias*, *Dracenas*, and many other strong rooted plants, as well as some species of *Palms*, more drainage is often employed than is either necessary or beneficial. Any of the above plants or those of like nature when potted at this time of the year in 5-inch pots or any size below, only require one crock to be used, with a little rough material placed over it. This allows the largest possible space in each sized pot for nutritious food, and enables the cultivator to produce large plants in relatively small pots, which is generally the aim of plant growers who grow the subjects named in large quantities for decorative work. I am prepared to find that many will not agree with me on this point, but that it can be done may be at any time demonstrated by a walk round Covent Garden, and an inspection made of the splendid materials there on view, grown by men who never think of making a more elaborate business of draining small pots than placing a single crock at the bottom. I noticed that fact a long time ago, and have since been gradually working in the same direction, and I am confident that those who give the matter a fair trial will find the departure a distinct gain; but let it be clearly understood that it is only for quick growing plants or strong rooted ones in small pots, that I recommend this practice to be adopted.—D.

CULTURE OF THE CARROT.

THE Carrot is a very important vegetable, being in daily demand for culinary purposes in most gentlemen's kitchens, and clean shapely roots are indispensable in collections of vegetables staged on the exhibition table. In order to obtain produce of the best quality—straight, clean, and smooth-skinned roots—it is necessary that the ground intended for the crop should be in good heart—that is, of average fertility and sweet, being perfectly free from rank matter resulting from laying on heavy dressings of rich farmyard manure shortly before sowing the seed, a circumstance which is obviously unfavourable to the production and development of clean high-quality roots of any description. Indeed, a large percentage of the roots resulting from ground so manured will be forked and coarse in appearance. The Carrot will do well in any deep, light, and fairly rich soil, but a deep sandy loam is most suitable. It is important to the production of clean handsome roots that the soil should be of an open nature and free from wireworms.

In preparing the ground for this and many other crops it is advisable that dressings of manure should be trenched or deeply dug into the ground as soon as possible after the removal of the previous crop in the autumn. This allows time for the proper decomposition, and the absorption of the ammonia by the soil. Lime, potash, soda, chloride of sodium, or common salt, and a surface dressing of fresh soot may be applied with advantage to the ground.

If the soil is of a stiff, cold nature let it be ridged in the autumn, so as to expose it to the weather until the following March, when advantage should be taken of dry weather to level the ridges, adding thereto leaf mould, wood ashes, coal ashes, burnt earth, sand, or other light material that may be at hand. The ground having been levelled, trodden, and raked with a coarse rake, enough of fresh soot should be strewn over the surface to discolour it before drawing the drills. These should be from 1 to 2 inches deep, 1 foot asunder for the Nantes Horn type, allowing 3 inches and 6 inches more respectively between the rows of James' Intermediate and the Long Red Surrey and allied varieties requiring space. Sow the seed thinly in the drills, afterwards closing the soil in over it with the feet, treading and raking it level.

The first sowing out of doors should be made as early in February as the soil will work or may be trodden on without its sticking to one's boots. Sow Nantes Horn or other approved early variety in a dry rather than damp situation, in a border in front of a wall or fence having a south or west aspect; the produce resulting from this sowing will continue the supply of young Carrots previously obtained from sowings made in pots and frames on hotbeds about Christmas and again a fortnight or three weeks later. Make a second sowing of the same variety and James' Intermediate about three weeks later, and a third in the middle or end of June, according as the district is late or early, should be made for drawing young during the autumn and early winter months. From the beginning to the middle of March make the general sowing, consisting of such excellent varieties as Veitch's Matchless and Long Red Surrey, mixing the seed with dry sand before sowing.

When the plants are a couple of inches high thin them, the Nantes Horn and allied varieties to 2 inches from plant to plant in the rows, afterwards drawing every alternate plant when fit and as required for use, giving a distance of from 6 to 9 inches between the plants of the other varieties indicated. Take advantage of showery weather to do this work, pulling up at the same time the weeds which are sure to come up with the Carrots.

If extra fine specimens of Carrots and Parsnips are desired, make holes about 18 inches deep in rows the same distance apart and at 15 inches asunder in the rows in ground prepared as described, and fill these with a compost of three parts light sandy loam and one of leaf mould and wood ashes, enriched by the addition of an 8-inch potful of Thomson's Vine and plant manure and a like quantity of fresh soot, the whole being passed through a quarter inch mesh sieve before being deposited in the holes. This having been made moderately firm with a rammer, sow three or four seeds in each hole, covering with some of the same compost, and in due time thin the young plants to one in each hole.

The application of water to the roots during the growing season must be determined by the character of the soil and that of the weather prevailing at the time. As a rule, the seed sown in June requires to be frequently watered through a roset can from the time the seed is sown until the crop is well advanced, this in order to ensure the seed vegetating regularly, and in due time to obtain a good crisp growth. Stir the soil to the depth of between 1 and 2 inches between the rows several times during the summer, this as much with a view to accelerating growth in the plants as destroying weeds. The best and most natural way to store Carrots is to take them up carefully with the assistance of a five-tined fork early in November, lifting the roots entire, cutting the tops off close to the crown, and then placing three or four rows of roots perpendicularly in a trench 15 to 18 inches deep and about the same width, covering these with soil excavated to the depth and width indicated, into which a second lot of roots are placed; thus continuing the operation until the roots are all stored, burying the crowns about 1 inch under the surface of the soil.

A situation where water is not likely to accumulate should be chosen for storing Carrots and Beetroot. Roots stored in the manner described are always fresher in colour and crisper than those stored in dry sand and sheds.

The remarks on the culture of the main crop of Carrots are equally applicable to the treatment of Parsnips.—H. W. WARP, *Longford Castle*.

CYANOPHYLLUM MAGNIFICUM.

THIS is essentially a fine-foliage plant, its panicles of small flowers being very insignificant. As its name implies, it is magnificent when well grown. Its leaves are broadly ovate, tapering to a fine point at their apex, and arranged on a moderately stout stem. A strong-growing plant produces leaves 2 to 3 feet in length, and about a third of the same in breadth.

In a moist stove it grows rapidly when plenty of root room is afforded. We grow ours in light fibrous peat and silver sand only with very satisfactory results. Some growers add leaf mould to the foregoing with apparently good results. Dryness at the root is injurious, and often fatal to this plant. It is very sensitive to any change in the temperature and humidity of its surroundings, and therefore of no great value beyond the precincts of the house in which it grows. I have used it for furnishing for a night now and again without any apparent ill resulting; but this cannot be practised with impunity, as my experience has repeatedly taught. In summer it should be afforded some shading, much direct sunshine being inimical to the beautiful velvety green texture of its leaves.

It can be increased in various ways. For commercial purposes it is chiefly propagated from eyes. When raised in this manner it

is desirable to preserve a leaf or part of a leaf attached to the eye. Cuttings made of side growths strike well, and the top can be cut partly through, in the same manner as *Dracænas*, and mossed. The large tops can also be rooted as cuttings where a sufficiently roomy case exists.

At no time should they be allowed to become root-bound, unless feeding is resorted to, a starved *Cyanophyllum* being a most miserable object. It is subject to the attacks of most insect pests, which are best removed by sponging. Ants are partial to this plant, often making their nests in its pot. These are best destroyed by a syrup made with one pint of water, quarter of a pound sugar, and 1 oz. of arsenic, boiled down to half its bulk, and placed on small saucers in their runs. This syrup is very poisonous.—W. R. WILLIAMS, *Great Marlow*.

NOTES ON PLANTS.

DOUBLE ZONAL PELARGONIUM HERMINE.—This is a semi-double pure white variety, which from the size of the individual pips and the intrinsic beauty of the flowers, ought to insure for this new form a large circle of admirers. During summer it might be taken as the white counterpart of *Raspail*, so like the appearance of that universal favourite is it; but, unfortunately, during the winter months I do not find it so free. At the same time it is but fair to say that the plants I have were cut over for cuttings in autumn, so that, perhaps, it is less wonderful that it should flower sparingly than that it should flower at all. It is a very great advance on any other white variety, and was distributed by Rozain in 1880.

CHIRYSANTHEMUM GOLDEN STAR.—All the single Chrysanthemums I have grown have been discarded save Miss M. Anderson after the first trial. Golden Star I had this year for the first time, and barring its somewhat tall habit of growth, it has everything about it that constitutes a "single" worth growing. Purveyors of much flower for cutting would do well to secure this, as it is a very charming sort, and withal late, which is a feature in its favour.

MONTBRETIAS.—I am inclined to think that some of the older forms of these are better in some respects than the newer ones. For example, we may take these three as being among the very best of decorative sorts—viz., *M. crocosmæfolia*, *M. Gerbe d'Or* (sometimes sold as *Golden Sheaf*), a most lovely plant, and *M. elegans*, another very graceful and pretty form. Those who have or are able to get a stock of these need have no hankering after newer and more expensive sorts. I am not quite sure as to the hardiness of the two latter, but trust that the present season will show us whether they are. It is curious how apt we are to run after newer and more expensive plants, thinking they are the best. Some of my friends who have seen our Montbretias, in order to be up to date have ordered the newer forms, and left these out. Just in the same way one finds some of the best decorative *Gladiolus* altogether unrepresented in gardens, quite possibly because they happen to be old and easy to purchase in comparison with newer sorts.

NARCISSUS PRINCEPS.—This sort is, of course, not nearly so fine as *Emperor*, to which, however, it bears some resemblance. At the same time, for early forcing and on account of the cheapness—good flowering bulbs can be bought at least one-twelfth the figure of *Emperor*—the princeps *Daffodil* is, perhaps, quite as valuable as the other. I have not found *Emperor* do well when forced; but when the plant has plenty of time to come on in a greenhouse the flowers are superb. *Princeps*, on the other hand, is about as fine when brought on rapidly as if left to move more slowly. The bulbs increase very rapidly, which is another point in its favour; and, as *Daffodils* grown at home under judicious treatment do about as well as those which are imported, this is also a point in its favour.

NARCISSUS POETICUS ORNATUS.—There is one very noticeable defect in this lovely white form, but whether it is a defect in the treatment or not I do not know. I refer to the exceedingly small number of roots made when cultivated in pots. On examining the plants to-day, preparatory to lifting them from their ash bed out of doors, I found hardly any roots had been produced. *N. poeticus*, on the other hand, had quite an embarrassing quantity of roots, not the soil only being full, but they had extended deep into the plunging material, and many of them upwards among the same. *Emperor* and *Horsfieldi* were also extremely well rooted. As this is by no means the first time I have noted this sparse rooting propensity of *ornatus*, and as I have 1000 selected roots in pots, the question is worth elucidating. The probable reason appears to be a too late season of potting. The bulbs in question were Dutch grown, and they were not received until September

along with other Dutch bulbs; and, as this sort is early it is just possible that they ought to have been potted some weeks earlier. The bulbs of poeticus referred to were cultivated in the garden, were lifted immediately the foliage browned, thereafter lying in the sun until thoroughly ripened, and about 3000 of the best were imported in August. The variety is recurvus.—B.



ORCHIDS AT ALLERTON BEECHES.

A SHORT time ago I sent a few notes dealing with various subjects I saw at Allerton Beeches. I then stated that the Orchids grown were of great importance, and promised to deal with them again. Last week I had the pleasure of making a second visit, and noted many beautiful varieties in flower. First let me take the *Phalænopsis*. On an end stage in the *Cypripedium* house were some twelve plants growing in teak cylinders, and all in full bloom, the whole making a very pleasing display. Not only were the plants well flowered, but the flowers themselves were of remarkable substance, unlike some often seen. *P. amabile* had four branches and fifty flowers; *P. Stuartiana*, twenty-seven flowers; *P. Schilleriana*, twenty-five flowers; *P. Sanderiana*, a pink form of *amabile*, thirteen flowers; two plants of *P. grandiflora aurea*, eight flowers each. These were the principal in flower, but several others were showing well. Not much moss is used to them, and I noticed in several pieces of soft red sandstone used in preference to crocks, and with excellent advantage, judging from the appearance of the plants. Mr. Edwards does not believe in punishing the plants by allowing the spikes to remain too long upon the plants. As soon as they are fully expanded they are cut and placed in tubes of water placed by the sides of the plants. I examined some which had been cut a fortnight, and which were quite fresh. Most likely this is the secret of the flowers being of such excellent quality.

Other Orchids were *Dendrobium Ainsworthi*, a pretty variety delicately spotted with pink and differing from the ordinary type; *Cypripediums* *Leeanum*, *villosum* *Maulei*, *nitens*, and *callosum*, several finely flowered plants of *Cymbidium Lowianum* and *Cœlogyne cristata*, *Lælia anceps*, *Stella* and *Sanderiana*, *Maxillaria Sanderiana*, a fine form of *Oncidium macranthum*, whilst plants of *Dendrobium Jamesianum* had stout pseudo-bulbs, which were literally laden with flower.

The *Odontoglossum* house is a model of what such houses should be. It is below the ground level and fitted in a most perfect manner. Hundreds of grand plants representing every well-known variety are here to be seen, but it was rather early to see them in flower. They are pushing splendid strong spikes, and will make a capital display later on. Those in bloom and nearly so were *O. sceptrum*, *Andersonianum*, *Halli*, thirteen flowers; *radiatum gloriosum*, one especially fine variety carrying sixty flowers; *Harryanum* and *Reichenheimi*, one spike with six branches and forty-three flowers.

There is also a beautiful collection of *Cypripediums* of all the old and new varieties I mentioned in my last note, much work being carried on in the hybridisation of Orchids and large numbers of seedlings have been raised. I had the pleasure of noting the various crosses, and in the near future we may expect something startling being sent out from Allerton Beeches. Thinking the list of successful crosses might be interesting to the readers of the Journal I append the following:—*villosum* × *Rothschildianum*, *callosum* × *Spicerianum*, *insigne Maulei* × *Rothschildianum*, *Lawrencianum* × *Godefroyæ*, *Argus* × *bellatulum*, *Harrisianum superbum* × *Sanderianum*, *Lawrencianum* × *superbiens*, *barbatum nigrum* × *bellatulum*, *Harrisianum nigrum* × *Boxalli atratum*. The first flower out of the large batch of seedlings was in flower at the time of my visit. It is a cross between *C. insigne Maulei* and *C. venustum pardinum*, but it seems rather too much like *C. amandum* to be passed as a distinct variety. *Lælia Dayana* × *Cattleya aurea* yielded a pod from which sixteen plants have been raised. There are also two plants from a cross between *Zygopetalum*

crinitum and *Zygopetalum rostratum*. My conversation with Mr. Edwards showed him to be a thorough master enthusiast in the difficult matter of the fertilisation of Orchids, as indeed in everything else he undertakes, and it is gratifying to learn that his employer, Henry Tate, jun., Esq., fully appreciates his efforts.—R. P. R.

CYPRIPEDIUM PITCHERIANUM VAR. WILLIAMSI.

WHEN a hybrid *Cypripedium* receives a first-class certificate at the meetings of the Royal Horticultural Society it is a reliable indication that the plant possesses some qualities of an exceptional character. Of late the seedlings in this genus have become so numerous that the members of the Orchid Committee are very critical in their examination of novelties submitted to their judgment, and though awards of merit have been frequent, the higher honours are rare.

That of which a flower is faithfully represented in the wood-cut (fig. 15) bears the name given at the head of this note, and was raised at Messrs. B. S. Williams & Son's nursery, Upper Holloway, between *C. Harrisianum superbum* and *C. Spicerianum*. It is a particularly handsome *Cypripedium*, with large bold flowers, having a polished shining appearance, and very rich in the colouring. The



FIG. 15.—CYPRIPEDIUM PITCHERIANUM VAR. WILLIAMSI.

dorsal sepal is $2\frac{1}{2}$ inches broad, rounded, veined with dark crimson in the centre and at the base, the lower sepal pale green; petals polished with dark reddish central vein, the lip neat and of a dark tint like the petals.

In habit it is extremely free, both in growing and flowering, and the first-class certificate awarded at the Westminster Drill Hall on October 27th is a guarantee that it is likely to become a useful plant.

OPEN AIR PEACHES.

IT is interesting at times to turn our attention to articles written by that well known gardener, Mr. Iggulden; in fact, it would scarcely be possible to overlook his name, seeing that his contributions are so widely distributed in the majority of gardening periodicals. This is the more surprising because his writings

are usually looked upon by sound practical men as "productions of an active mind," and they naturally turn their attention to his articles merely to see what new or strange treatment he has found to set the "old fogeys" at work to ascertain how it is possible they could have allowed all these years of experience to go by without finding the secret of success, or the faddist who is ever ready to put into practice any method recommended without waiting to consider how unstable or uncertain the result may be.

In turning my attention to his article on "Open Air Peaches," it has interested me the more knowing that Marston Gardens have not in past years been able to boast of any great success with open air Peaches, which cannot altogether be attributed to unfavourable climatic conditions, seeing that the walls upon which the Peaches are grown are far more elevated, and the situation at a higher altitude than many of Mr. Iggulden's brothers in the craft, whose successes can be pointed to with pride. It is not my intention to criticise the whole of the article, because much of it is sound. I will merely take the sixth paragraph relating to the undermining operation of the trees in full bearing, especially as he, in the usual positive terms, assures us that no good reason can be advanced against such a practice. I am also sure that no good reason can be advanced by Mr. Iggulden, or any other man, why trees should be moved or undermined whilst in full flower or full bearing; in fact, I cannot understand how any gardener could so far neglect his work, and then endeavour to retrieve the lost ground by manipulating his trees at the period when they require the most support.

The article reads thus:—"When the trees are in full bearing it is advisable to undermine and cut through deeply running roots." Surely this is wrong. Pray, Mr. Printer, acknowledge your error, and say the word "advisable" should read "unadvisable," or what is to become of many faddists and young men, who are ever on the look out for new methods?

Why subject the trees in full bearing to such barbarous treatment, Mr. Iggulden? Is it to prevent the fruit growing to its natural size? Surely you are not advocating curtailment of size in Peaches, at least those exhibited by you and grown under glass do not lead us to think such the case. Further, we read:—"Last spring we moved two young trees in full flower, and the operation was both successful and beneficial." Again, Mr. Printer, I ask you to acknowledge yet another error, and substitute the words "did not move" for those which read "we moved," and save the reputation of a good gardener, or what is to become of the "old hands," whose life's work is revolutionised, and the old Journals we have so carefully preserved—are they to be cast aside as worthless, and their past teachings ridiculed?—*NOUS VERRONS.*

TOM THUMB DAHLIAS.

It would be useful and interesting if those who tried this new section of Dahlias would give the readers of this Journal the benefit of their experience with them, for dwarf, free-flowering Dahlias with a compact habit and a good range of decided colours would be a great boon to bedding out gardeners, whose time and convenience for working up a host of tender bedding plants are often severely taxed.

There is no denying the great utility of tuberous plants for bedding purposes, as being dormant all through the winter and spring until a short time before they are wanted for bedding, there is a great saving of labour in watering and propagation at a busy season of the year. Tuberous Begonias have of late years come much to the front, and threaten to exterminate the Zonal Pelargonium for bedding purposes; but one of the great charms of a well-managed garden is variety, hence it is a great mistake to plant too much of one thing, however good it may be for the purpose.

It may be premature to give a decided opinion of the merits or otherwise of this new race of Dahlias for bedding purposes from one season's trial, as, on account of the extreme variety of weather, the plant that is a success one year may be a failure the next. The height and habit of the Tom Thumb Dahlias are all one could desire in a bedding plant, and provided they prove free flowering, and able to withstand showers of rain, they will be extremely useful and able to take rank with the Tuberous Begonia as a bedding plant.

It is an unfortunate characteristic of single Dahlias generally that their florets are so easily knocked off by showers of rain and high winds, which of course detracts from their usefulness, and when planted in masses for effect they are often disappointing on this account, especially in showery seasons. Those who plant the Tom Thumb Dahlias for effect this year should examine them frequently and pick off all old flowers, as they have a great tendency

to seed, which of course exhausts the plants and checks their flowering.

We hope to give them a good trial this season in a large well prepared bed. We shall plant them 24 inches apart, and carpet with blue Violas. With us none of them exceeded 18 inches in height last year, so that they do not require stakes, or only slight ones. And the habit of the plant is bushy and short jointed.—*J. H. W., Leicester.*

CARNATIONS AND PICOTEEES FOR INDOOR DECORATION.

THERE seems to be some hope now that our societies especially devoted to these two very popular flowers, may do something in order to afford the public an opportunity of seeing how admirably these flowers, both in a cut as well as the plant stage, are adapted to indoor decoration. In a cut state no flower in cultivation lends itself more readily to artistic arrangements, for its natural habit is altogether in its favour—just sufficiently graceful and not too stiff, almost rivalling Orchids in the great variety of exquisite colours from pale yellow to the richest rosy crimson in selfs, embracing a very large number of most delicate shades of colour, and opening out an endless variety of richly coloured flowers in the distinct yellow ground and fancy varieties, and in such beautiful blooms as Campanini, Edith D'Ombra, Clara Penson, and so many others with which florists are familiar. Then they are so durable in a cut state, lasting many days, and several possess a fragrance which gives them a still further recommendation. I very much admire them in vases of various sizes to suit the position in which they are to be placed; and for a breakfast table or boudoir, as well as for dinner table work, what is more beautiful than a few small vases of a light graceful character in which some flowers of Carnations and Picotees have been tastefully arranged, the colours in harmony? In America they are a long way ahead of us in their recognition of these flowers for decorative work, and in no way whatever are their beauties so admirably brought out as when displayed in elegant vases. Calling upon a floricultural friend the other day, who is a partner in one of the large midland firms of brass lamp and chandelier manufacturers, I was very much struck with the extreme artistic beauty of some wrought iron stands of hammered iron work, in which an Arum Lily-shaped glass in soft colours is placed for the reception of flowers. Here is the very thing we want, a most beautiful light elegant table or room ornament in itself, and a truly fitting receptacle for a few lovely Narcissi, Tea Roses, Orchids, or any other flowers, especially Carnations and Picotees.

I do not care about baskets of Carnations and Picotee flowers, and unless very artistically arranged there is a stiff formal arrangement generally, and their uses are circumscribed. With charming vases such as I have indicated, or any other suitable shape and material, they can be used in so many places. Bouquets of Carnations and Picotees are not attractive unless the work of an artist in floral arrangements. I saw a group of bouquets of these flowers at a great show last August, and with one exception I was greatly disappointed, for there was a great want of artistic arrangement in all the others, a crowding of the blooms, too many colours were used, and a formal style in the making up.

Bouquets of Carnations are all very good for presentation or for wedding or festive purposes, but for table decoration or for brackets in rooms nothing can touch light graceful vases, and this is the idea we ought to encourage and exhibit. With a charming harmony of colours, such as the lovely pale yellow Germania and a deep blush colour or soft pink or salmon tinted pink, or the new apricot or the terra cotta colour, a most pleasing combination of colour is readily produced, and so on ad libitum. Of the fitness of the Carnations and Picotee for conservatory and room decoration when in pots no one can write too much in their praise, but the public have yet to be educated to a full value of them by seeing them. Large pots are very objectionable, for decorative work the less we see of the pot the better, and the more of growth and flowers the greater the gain. There are so many free growing kinds now which are most suitable for pot work in 5 to 6-inch diameter pots, and from one to two plants of a sort in a pot. The conditions of culture are simple enough—good soil, potting up in March or early in April, growing on out of doors until the buds are well developed, looking well after insects, and tying up and keeping the plants freely syringed in dry weather, and with occasional waterings of clear soot water. Staking should be done with one neat plain deal stick, not clumsy or too large; and wire supports are easily obtainable, these being from 2 to 3 inches long with a curved end to support the flowers, and the sharp point to press into the stick.

These are inexpensive, neat, and answer the purpose better of keeping the blooms in position than ordinary matting. A plant of

Carnation or Picotee in these smaller pots, with from six to ten or twelve lovely flowers, is a sight for anyone, and most easily obtained if the plants are secured and potted up in time and are properly looked after.—W. D.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

(Continued from page 89.)

In the "Journal of Mycology," vol. vii., No. 1, we find the following report of "Experiment in Treating the Potato Rot," by Professor Goff, Madison, Wisconsin, U.S.A.

The only fungicide tested in this experiment was the Bordeaux mixture. (The Bordeaux mixture in this case was made by slaking 6 lbs. of lime in one vessel and dissolving 4 lbs. of copper sulphate in another, uniting the contents of the two vessels on the cooling of the lime, and diluting the whole with water to 22 gallons). It will be noted that this is a distinct departure from the usual formula in preparing the Bordeaux mixture. Mr. Galloway's, the usual Bordeaux mixture used in America, consists of copper sulphate 6 lbs., lime 4 lbs., and water 22 gallons, but in the mixture used by Prof. Goff in treating the Potato rot the lime is increased and the copper sulphate decreased 2 lbs. respectively, the substances reversing places. This makes the mixture less than a 2 per cent. solution of copper sulphate, which was thoroughly effectual in protecting the Potato plants, and is mentioned as it confirms the views of German scientists, also work done at St. Michael's Experimental Station, and experiments performed by Quantin, Mason, and others, that the formula for Bordeaux mixture may be modified, greatly lessening the amount of copper. These experiments point to Bordeaux mixture containing one-fourth to one-eighth the usual amount of copper as giving results equivalent to the regular formula. French scientists do not agree with those deductions. Though allowing that a 1½ to 2 per cent. solution of copper sulphate may in some circumstances be sufficient, they generally agree that a 2½ to 3 per cent. amount of copper sulphate is necessary to effectively protect the Potato plant from the fungus, and Professor Goff's experiments prove conclusively that where the mixture was applied at full strength the best results were secured. These points will come out in the report of the experiment.

The plat selected for the experiment included about half an acre of ground nearly in the form of a square, and was planted with Snowflake Potatoes, May 31st, the seed being placed in hills 3½ feet apart each way. Five rows extending through the centre of the plat in each direction were staked off as a check area, the four corner plats thus separated being subjected to the treatment. The S.W. plat was treated with the Bordeaux mixture at full strength, for the N.E. plat the mixture was diluted about one-fourth, for the S.E. plat about one-third, and for the N.W. plat about one-half. The first treatment was given July 3rd, at which time the plants were 3 to 15 inches high, and apparently healthy. Other treatments were given July 14th and 25th, August 6th and 19th, and September 2nd.

More or less of the mixture was visible at all times after the first spraying until the crop was harvested. At the time of the fifth spraying (August 19th) it was evident that the treatment was bearing fruit, as the foliage of the check rows was turning yellow and in spots becoming brown and apparently dying, while that of the treated portions was still fresh and green. At the last spraying (September 2nd) the effect of the treatment was still more marked, the vines in the check rows being mostly dead or severely blighted, while very little of the blight was visible on the treated plats.

During my visit to Mr. Hatch's place in the latter part of September, the check rows were conspicuous by their brown and dry appearance at a distance of several rods from the field, while the plants in the treated areas were still for the most part green and growing. A frost occurred September 28th, which destroyed most of the surviving foliage. October 9th to 15th the Potatoes in the various plats were dug, assorted, counted, measured, and weighed. The numerical data appear in the following table:—

Plat.	No of hills.	Merchantable yield.		Total yield.		Yields calculated to a uniform number of hills.			
						Merchantable		Total.	
		No.	Weight	No.	Weight	No.	Weight	No.	Weight
N.E. corner ..	321	2255	835	6815	1133	2669	988	8068	1310
N.W. corner..	287	2530	871	6455	1102	3350	1049	8547	1459
S.E. corner ..	340	2176	903	7462	1320	2432	1009	8340	1475
S.W. corner ..	343	3075	1127	6905	1367	3407	1249	7650	1514
Check.....	383	2125	698	6200	1000	2125	698	6230	1000

The unequal number of hills in the different plats arose from two causes—viz., the whole area was not quite regular in outline, and, as the ground was a little sloping, the heavy June rains washed out some hills in

places. The number recorded in the table represented the hills that matured their crop, as determined by counting before the Potatoes were dug.

As the check rows traversed the whole planted area in both directions, we are justified in assuming that they represented an average of the whole plat so far as the conditions of soil and culture were concerned, and that any difference in the yield of these rows, and that of the average of the four treated plats, when calculated to a given number of hills was due to the treatment. In other words, had each of the four treated plats contained the same number of hills as the check rows, the aggregate yield from them would have been, without treatment, approximately four times as much as that from the check rows. Considering the yield of merchantable Potatoes, then, the four treated plats would have yielded without the treatment 4×698 , or 2792 lbs., whereas they actually yielded 4295 lbs., an increase, presumably due to the treatment, of 1503 lbs., a fraction over 25 bushels. From the figures, it would appear that the applications to the south-west plat, in which the fungicide was used at full strength, were most effectual, and that for the Potato the Bordeaux mixture should not be diluted.

The cost of the treatment was approximately as follows:—

69 lbs. copper sulphate at 9 cents (4½d.) ..	\$6.21	=	(£1 5 10½)
24 hours labour at 15 cents. (7½d.)	3.60	=	(£0 15 0)
Lime and labour of preparation	0.50	=	(£0 2 1)
Total	\$10.31	=	(£2 2 11½)

From which it appears that the treatment, though made with a small hand force pump, and in the most thorough manner, was more than compensated for by the increased yield secured.

It should be added that more of the Potatoes were decayed at the time of digging, and that there were no indications that the blight which so seriously affected the foliage of Potatoes the past season on the check rows of our experimental flat, and throughout Southern Wisconsin, was connected in any way with the Potato-rot fungus, *Phytophthora infestans*; but whatever the affecting disease was, it is evident that the treatment proved a remedy for it.—G. ABBEY.

(To be continued.)

GRAPES FOR EXHIBITION.

[Read at the Bournemouth and District Gardeners' Association, Jan. 20th, 1892, by Mr. C. WARDEN.]

In a paper of this kind it is impossible to do other than simply refer in the briefest manner to the several subjects brought under notice, for to go fully into each would occupy more time than is allowed. I would not have it set forth that to gain prizes at our horticultural exhibitions it is required that the Grapes should be grown specially for that purpose, although there are a few who show whose main object is the gaining of prizes, and not the supply of Grapes for an employer's table. Happily they are the exception and not the rule. My object, and that of many others, is the production of a full crop of Grapes of the highest quality, so that a few from amongst them may be selected for staging at shows. To prepare for this selection it is necessary that all be treated carefully and well, not allowing the smallest bunches to be roughly handled; so that where a few good bunches can be cut, generally speaking, many might be found with but a degree or two of merit dividing them. In such instances the employer is in reality the gainer, for he not only has the prize bunches, but the whole crop is of equal merit.

The question will here present itself, What should be considered a full crop of Grapes? To this I must say that my view of this falls short of what some market men think a full crop—namely, one and sometimes two bunches to every lateral. In deciding this point, much will depend upon the strength and vigour of the Vine in question, some being capable of carrying much more than others. A healthy Vine with plenty of lateral room will carry and perfect 2 lbs. of Grapes to every foot run of rod, bringing them, under good treatment, to a high state of perfection. Having gone thus far, as an introductory part, I will take that which, in the ordinary course of things, should come first—viz., making the borders—for I believe in making the medium to one's liking. With very few exceptions it will be found best to concrete and well drain the bottom, for when this is properly done we know exactly where the roots are, so that it is a comparatively easy matter to give them what they require. I do not think it makes much difference whether the border is inside or out, so long as they have the kind of treatment they require. But I prefer half inside and half out, in which case the Vines would be planted inside, and we avoid the anxiety caused by the lower part of the stems being exposed to frost, which is only too often the case, while their heads are protected under a heated structure. Another advantage is gained by being able to lift half the roots one year and the other half at some future date, should that course be found necessary.

A word might with advantage here be given as to the size of borders, for I am of opinion that they are generally made too large. When made from 2 feet to 2 feet 6 inches in depth, independent of drainage, there is no necessity, in my opinion, for their being more than half the width of the area the Vines are to cover, and I am sure, where Vines have all the attention they need as to watering and are not likely to be neglected in that way, a fourth the width of the house would be much better. The system of adding a slice in the way of new loam to a Vine border every year is very good for a time, as the new loam is known to

contain, in most instances, all that the Vine requires. But this practice cannot go on many years, as the border becomes too large and unmanageable, in which case a fresh start must be made, and in many places this would be impossible. Soil is an important point, and doubtless has much to do with success or failure, according as the cultivator is placed. However, all are agreed that loam is the staple soil, which should be taken from an old pasture, and if possible cut and stacked when dry, and not from beneath trees. According to the texture, whether clayey or sandy, so must its after treatment be. Should it be obtained from the chalk, in all probability it will contain more than sufficient calcareous matter, when brickbats broken up fine would be the best for mixing to keep it open. But when the loam is obtained from soil known to be deficient in lime, as some clay-sands or bogs are known to be, lime should always be added to it, and old mortar rubbish is the best form.

In a general way it will not be found necessary to mix animal manure with the soil at the time of making the borders, unless the soil is known to be very poor; but there is no objection to half-inch bones, if not used extravagantly. Given a compact border well filled with roots it is possible to apply all that is necessary for the good of the Vines from the surface. The manure used should be of a mixed kind—that from stables alone, in my opinion, being too heating. Night soil is good where it can be obtained in a proper state, wood ashes are valuable on account of the potash they contain, and soot is always acceptable; but probably liquid manure, when it can be obtained from farmyards, is as good as anything. I have no faith in digging or forking over the surface of the borders, and believe that such practice should be condemned. Neither do I believe in cropping the border with vegetables or flowers, as I am of opinion that much harm often accrues. If Vines are worth a heated house to grow in, surely they are deserving of a small piece of ground in the open air.

There is much in growing Grapes for exhibition as well as for private use in having those that are of handsome appearance as well as of good quality. The highly flavoured varieties require extra good treatment to have them to compare with some of the poor flavoured kinds as regards appearance. While size of bunch and berries, with symmetrical and tapering form, berries of even size, colour, and bloom are the prime factors that make up a good bunch of Grapes, very often such varieties as Gros Maroc and Gros Colman will have all these points developed, but they would not have the remaining one—flavour. Madresfield Court, when seen at its best, will come up to those named, but unfortunately it is not often seen at its best. Good judges, as well as framers of schedules, should protect the summer Grapes, such as Black Hamburgh, Madresfield Court, and Muscat Hamburgh, against Gros Maroc, Alicante, and Alnwick Seedling up to the end of August.

I will give the names of a few varieties, placing them somewhat in their order of merit, taking double the number of black varieties to those of white, as black Grapes are most in request. Madresfield Court is a hybrid raised by the late Mr. Cox when gardener to Earl Beauchamp at Madresfield Court, Worcestershire, by crossing Muscat of Alexandria with Black Morocco, and was sent out by Messrs. Lee of Hammersmith. This variety possesses all the good qualities when seen at its best, which is not very frequent. Owing to the trait of berries splitting their skins, it has not been so commonly planted as its merits entitle it to be. Give it the driest end of the Hamburgh house, and take care to use a little fire heat on all damp and muggy weather, and also when much water has been used about the house, either when watering the border or plants that may be growing beneath, and no fear need be apprehended as to the berries splitting. Certainly no watering at the root will cause it, so long as the atmosphere of the house is kept dry.

Black Hamburgh is one of the oldest varieties in cultivation, having been introduced into this country nearly 200 years ago. There are many fine specimens of it now in existence, notably the one at Hampton Court, which is upwards of 130 years old; the Vine at Cumberland Lodge, Windsor Park, is also a noble specimen of the kind, and there is also a very fine specimen of the same at Melchet Court, Romsey. I can speak from my own observation as regards these. Frankenthaler is the name by which this variety is known in Germany, where it is largely cultivated. Doubtless there are slight differences in this kind, as seen at different places, and it is always well to propagate from a good stock. It is still one of the best Grapes, whether for home supply or exhibition, and one, when taken into consideration the extent to which it is grown, the least often seen in its best condition. Although this is a variety of good constitution and easily managed, to have it in condition for table it generally requires a little careful handling to finish it properly. In the first place it is impatient of extreme light. After the berries commence their second swelling, if the house is a very light one and the heat liable to fluctuate from that cause, partial shade may be resorted to with advantage. The temperature of the house at this stage should not range high, and abundance of air should be given by day and a little left on all night.

(To be continued.)

THE GARDENERS' ORPHAN FUND.

THE annual general meeting of the subscribers to the above Fund was held last Friday in the Cannon Street Hotel, William Marshall, Esq., in the chair, but there was not a large attendance, between twenty and thirty being present. The notice calling the meeting and the minutes of the last annual and special general meetings having been read and signed, the report and cash statement, which follow, were taken as

read. The Chairman then briefly reviewed the progress of the year, and said that the subscribers had cause to congratulate themselves on the good work being accomplished and the condition of the Fund as shown in the Report statement, the adoption of which was carried unanimously.

Mr. T. B. Haywood was re-elected Treasurer, Messrs. J. Fraser and W. Sharp as Auditors, and Mr. A. F. Barron as Hon. Secretary, votes of thanks being accorded to each for his services during the past year, and special reference was made to Mr. Barron's valuable work. Messrs. Assbee, Cannell, Cummins, Gordon, Lane, Roupell, Sharman, and Wynne were re-elected as members of the Committee, and before adjourning for the ballot Messrs. Dean and Wynne were appointed scrutineers. The result of the election subsequently declared was as follows, the names of the successful candidate being preceded by an asterisk:—Ada Beddoes, 49; *James Alfred Bolton, 122; *Edward William Butcher, 163; Winnifred Helen Doherty, 34; Nellie Ede, 86; *Thomas James Francis, 259; *Mary Esther Green, 272; *Olive Hall, 90; Robert Houston, 58; *Janet Hood Ireland, 99; John Keates, 20; *Agnes Jane McIntosh, 137; Alice Maud Milne, 33; *Edmund Norgate, 129; *Annie Parker, 216; Minnie Rapley, 31; John Titley, 70; *John Ernest Vine, 141; Rosa Emily King Ward, 63; *Charles Newrey Wasley, 244.

REPORT OF COMMITTEE.

THE Executive Committee in presenting their fourth Report have again the pleasure of congratulating the subscribers to the Gardeners' Orphan Fund on its growing importance to the gardening community, as testified by the generous support it continues to receive from all classes.

The Committee deem it necessary for the information of new subscribers to state that eighteen months have elapsed since the last Report and statement of accounts was issued, owing to the alterations made in the rules twelve months ago, which provided for the commencement of the financial year being altered from July 1st to January 1st, the former date having been found to cause much trouble and confusion in the management. The Committee are glad to report that although the accounts (which are herewith submitted) include the working expenses of eighteen months, and the subscriptions practically only for the twelve months, there has been no diminution of revenue, but on the contrary a considerable increase.

The munificent proposal made by Mr. N. N. Sherwood and Mr. H. J. Veitch at the last general meeting: that if the subscribers would contribute a minimum sum of £250 they would jointly provide any further sum that might be required to allow the Committee to place on the Fund the seven children who had that day been unsuccessful, as a memorial to the late Chairman, Mr. George Deal, was readily accepted by the Committee. The sum of £555 16s. 6d. was speedily raised, enabling the Committee to grant the benefits of the Fund to seven orphans. The Committee, recognising the great value of the services rendered by Mr. Deal to the Fund, most gratefully thank all those who so generously helped in promoting such an appropriate tribute to his memory.

The lamented death of Mr. B. S. Williams, a warm supporter of the Fund, called forth a very general desire that his honoured name should also be associated with the Fund in a similar manner, and on receipt of £250 from the B. S. Williams Memorial Trustees, two more children, on the nomination of Mr. H. Williams, were elected.

The Committee deplore the loss of Mr. William Richards, one of their most zealous and active colleagues, who was never weary of promoting the best interests of the Fund. His name will be long held in grateful remembrance.

The Committee greatly regret that they were unable to arrange for a Floral Fête in Covent Garden Market as in former years, owing to practical difficulties in carrying them out. The loss thus sustained was in a great measure compensated for by a generous subscription raised by the standholders in the market, and by the profits arising from the Rose Fair and Floral Fête held at the Crystal Palace. The desirability of establishing this Fête at the Crystal Palace as an annual event is under the consideration of the Committee.

The National Card Collection, which was instituted in the summer of last year, resulted in adding the handsome sum of £250 to the resources of the Fund. This collection, it is proposed, shall be continued annually. The fact that of the amount collected last year the greater part came from non-subscribers to the Fund, and mostly in small sums, was considered extremely gratifying.

The Committee find it impossible to acknowledge in detail the great obligations they are under to so many kind friends for efficient help rendered in many ways during the past eighteen months, and embrace this opportunity of tendering to them collectively very hearty thanks.

At the present time thirty-nine children are receiving the benefits of the Fund, and the Committee recommend that eleven be elected this day, thus raising the number of *beneficiaries* to fifty, who will be supported by the Fund at a cost of £650 a year. Most gratifying as the Committee regard this, as the result of the work of the Fund during the comparatively short time (four and a half years) it has been established, they cannot ignore the fact that they are still unable to meet the claims of many necessitous cases that come before them, and take this opportunity of again urging the claims of the Fund upon gardeners in particular and a generous-hearted public for assistance.

The Committee were fortunate in securing Mr. William Marshall of

Bexley, a gentleman well known in the horticultural world, as Chairman in succession to the late Mr. Deal. Mr. Hugh Low of Clapton was elected a member of the Committee, in the room of Mr. George Deal, deceased; and Mr. A. W. G. Weeks of Chelsea, in the place of Mr. W. Richards, deceased. The members of the Committee who retire by rotation are Messrs. Assbee, Cannell, Cummins, Gordon, Lane, Roupell, Sharman, and Wynne, and, being eligible, they all offer themselves for re-election.

CASH STATEMENT, JULY 1ST, 1890, TO DECEMBER 31ST, 1891
(EIGHTEEN MONTHS).

RECEIPTS.					£	s.	d.
To Balance from last Account ..	..	..	..	..	807	8	11
„ Subscriptions, General ..	..	..	..	..	£359	10	6
„ Ditto collected by Local Secs. ..	..	..	..	..	130	7	6
„ Donations, General ..	..	..	..	..	332	19	2
„ Ditto collected by Local Secs. ..	..	..	..	..	117	4	2
„ The George Deal Memorial ..	..	..	..	..	450	3	4
„ The B. S. Williams Memorial ..	..	..	..	..	555	16	6
„ General Card Collection ..	..	..	..	..	250	0	0
„ Crystal Palace Fête ..	..	..	..	..	294	7	3
„ Annual Dinner ..	..	..	..	..	129	3	3
„ Advertisements in List of Subscribers ..	..	..	..	..	67	15	6
„ Miscellaneous Receipts ..	..	..	..	..	31	2	0
„ Dividends on Stock and interest on Deposit ..	..	..	..	..	52	14	4
					173	17	2
					£3302	6	3

NOTE.—INVESTMENTS, ETC.

2½ per cent. Consols ..	..	..	..	..	£4056	4	7
3 per cent. Canadian Stock ..	..	..	..	..	500	0	0
					£4556	4	7
On Deposit with Bankers ..	..	..	..	..	600	0	0
					£5156	4	7

EXPENDITURE.					£	s.	d.
By Allowances to Orphans ..	..	..	..	..	695	10	0
„ General Card Collection ..	..	..	..	..	44	5	2
„ Crystal Palace Fête ..	..	..	..	..	90	2	3
„ Annual Dinner ..	..	..	..	..	54	1	8
„ Printing List of Subscribers ..	..	..	..	..	24	0	0
„ Secretary's Clerk ..	..	..	..	..	£78	15	0
„ Printing and Stationery ..	..	..	..	..	46	12	4
„ General Meetings (two) and Election ..	..	..	..	..	16	12	7
„ Hire of Rooms for Meeting ..	..	..	..	..	8	2	0
„ Postage ..	..	..	..	..	23	0	0
„ Bank Charges ..	..	..	..	..	1	14	4
„ Sundry Expenses (Petty Cash) ..	..	..	..	..	14	11	4
					189	7	7
„ Purchase of £517 8s. 9d. 2½ per cent. Stock ..	..	..	..	..	500	0	0
„ Ditto £500 2½ per cent. Stock ..	..	..	..	..	475	0	6
					975	0	6
„ On Deposit with Bankers ..	..	..	..	..	600	0	0
„ Balance at Bank ..	..	..	..	..	629	19	1
					£3302	6	3

Having inspected the Securities, and examined the Books and Vouchers supplied to us, we certify the above account to be correct.

(Signed) JOHN FRASER, *Lea Bridge* }
WM. SHARP, *Chartered Accountant*, } Auditors.
61, *Gresham Street, E.C.* }

Dated January 18th, 1892.

VEGETABLES FOR EXHIBITION.

AT the last fortnightly meeting of members of the Devon and Exeter Gardeners' Association held at the Guildhall, Exeter, Mr. G. D. Cann, Hon. Secretary of the Exeter Horticultural Society, presided, and there was a good attendance. The subject for discussion was "How to Grow and Show Vegetables for Exhibition," a paper on that subject having been prepared by the Rev. A. H. Cruwys, Rector of Cruwys Morchard near Tiverton. It was looked forward to with much interest, as Mr. Cruwys is not only well known in the local gardening world as an expert in vegetable culture, but has often appeared at the Exeter flower shows as a successful competitor. In addition to this he has offered special prizes himself at local shows, with the view of raising the standard of quality in vegetables. Unfortunately, Mr. Cruwys' medical advisers would not sanction his being out of doors in the evening, and Mr. Hope (Hon. Secretary) therefore, at the essayist's request, read the paper as follows:—

Having been asked by our Hon. Secretary, Mr. Hope, to give a paper on the cultivation of some vegetables for table and exhibition, I have chosen for my subjects three—viz., the Potato, the Beetroot, and the Turnip, the cultivation of which I have made my especial study, and after much thought, care, and, I may add, frequent failure, have been able to bring to the highest state of cultivation. I trust my friends, the gardeners, will not think me presumptuous as an amateur, or in any way wishing to dictate to those who understand gardening and the cultivation of vegetables as well or better than I do. I can assure them this is not the case. But being so devoted to gardening and everything connected with it myself, and having made some classes of vegetables my chief speciality, I may be able to impart to some of them information

that may be useful on the successful cultivation of vegetables for exhibition.

THE POTATO.

There is no class of vegetable that pays better for good cultivation than the Potato, and, I may add, as a rule, no class that receives worse treatment. Now in these seasons of disease, when so much has been written, and so many experiments tried with little success, it is the duty of everyone to try in a measure to defy its ravages by good cultivation, by which I mean suitable soil carefully prepared, and good sound seed frequently changed. It does not matter whether the disease is caused by electricity in the air, bad soil, or the ravages of fungi, there it is. It shows itself a little earlier or a little later every year, generally after much rain, or close foggy weather, and one thing is certain, that the most careless growers suffer most from its attacks. It is truly lamentable to see how some growers seem to invite the disease, rather than try to keep it off. Take a walk in the country at planting time; you will see one man has selected his ground in the corner of a field, in which the soil is wet, and too poor to grow either corn or roots. The Potato cave, which has never been looked at since storing time, is opened, and a tangled mass of seed all grown together is exposed, and the weakly white sprouts are rubbed off. Is not this one step towards ruin, disease, and failure? Yet this is the method pursued and the sort of seed sown in many, many a plot and field, and which is expected to produce a good crop! There are many, however, who have learned the value of good cultivation, and who on a good, dry, sharp soil, or, better still, old brake ground, well manured the previous autumn, and planted with seed that has been thinly spread all the winter, and slightly sprouted, will grow a fairly sound crop in any season.

Time for Planting.—Opinions differ as to the best time for planting the main crop. Some think that should the weather be suitable, and the ground in working condition, that the middle of February is a good time, in order to allow a long season of growth before the disease appears. Others make it a rule to plant as near Lady Day as possible. I am led to the conclusion, after many years' experience, that there is no better time than the second week in April, for I think that the soil, being pulverised by the dry March winds, and heated by the April sun, is in a better condition to receive the seed, which will then start into growth at once, go on at express speed, and be ready to lift at the same time as those planted in February or March, and which have lain in the ground for weeks doing nothing, and exposed to the ravages of slugs, grub, and other pests.

Growing for Exhibition.—In growing Potatoes for exhibition two points are essential—viz., a warm situation and carefully prepared soil, which should consist of peat, loam, vegetable ash, and sea sand. The ground should be manured in autumn, deeply trenched, and left rough, or in ridges, all the winter. About the middle of March a little fresh lime should be forked into the soil to kill the slugs and worms, and if the wireworm is troublesome (as it generally is in light soil) a sprinkling of salt and soot may be added. Potatoes for exhibition should be planted about the middle of April, as they are then likely to escape the early May frosts, and, in case there are any very choice sorts to be grown, it is well to place a few in boxes half filled with earth, and let them form roots in order to replace any that from any cause have failed or been touched by frost. It must be remembered that when the first growth is cut down by frost exhibition tubers must not be expected. For strong growing varieties the drills should be made 20 inches apart and the seed planted 14 inches apart. This will let plenty of sun and air into them. Cut the sets from the crown with two eyes, not more, plant 5 inches deep, and as soon as the growth appears fork lightly between the drills, and continue to do so once a week until the fibres begin to run. Do not mould up in the usual way, but simply draw a little earth on each side of the drills, for it must be remembered that the tubers require plenty of sun and air to ripen well, as a proof of which the largest and best ripened tubers are found nearest the surface. Any exhibitor who will take the trouble to grow his Potatoes after the manner I have described will not be disappointed.

Lifting the Crop.—Two or three days before the Potatoes are wanted for exhibition lift them very carefully with a five-pronged fork, and be very careful not to rub off the smallest bit of skin, or the tubers will be spoilt for exhibition. Having selected the number required (and a few in reserve in case of accident) expose them to the sun for an hour, turning them once, then wrap each tuber in paper, and place it in the dark until wanted. Should the weather be dry at the time of lifting, little or no washing will be required; indeed the tubers will look better without it, for they will be quite clean if grown in prepared soil such as I have described. In selecting samples for exhibition (if highest quality is aimed at) choose tubers weighing about half a pound, and no more, over that weight they become coarse as a rule. It must be

remembered that we aim at growing something of the highest quality for table use, and the gigantic specimens we so often see on the exhibition table are practically worthless for that purpose. At lifting time we are apt to set aside our very best and most shapely tubers because we think they are not quite large enough. I trust the day is not far distant when quality will take the place of quantity. Depend upon it, our exhibition tables will be made more attractive by the change, exhibitors will derive infinitely more satisfaction, and the competition, which now too often is confined to a few specialists, will be keener.

THE BEET.

Nothing is more effective on the exhibition table than a well-grown dish of Beet, and which, with a little care and trouble, can be grown nearly as perfect in shape as a Carrot. The soil to grow it for exhibition should be precisely the same as that I have described for Potatoes—viz., a mixture of good light loam, peat, vegetable ash, and sea sand. Prepare the soil in autumn by trenching to a depth of 18 inches, and having roughly shaped the bed, let it lie rough all the winter. A little well-decayed manure may be placed at the bottom of the trench, but none mixed with the soil, either in autumn or at sowing time. About the beginning of March turn the bed over and sow a little salt and soot. About the first week in April prepare the bed for sowing, which, when finished, should stand 10 inches above the level. Make the drills 1 inch deep and a foot apart. Sow thinly, but evenly, not in clumps at a certain distance apart, which is sometimes the custom, as, by so doing, the plant intended to stand is often pushed on one side, and is apt to grow crooked. Should the weather be warm and dry, give the bed a good soaking. As soon as ever the seed is up, give the bed a good dusting over with vegetable ash, which will effectually prevent the ravages of slugs. As the seed intended to produce exhibition roots will have to be sown (in cold districts) at least a fortnight earlier than the main crop some protection to guard against the spring frosts will be necessary. For this purpose drive a few stakes into the ground each side of the rows, against which place deal planks in a slanting position, so as to leave about 2 inches open at the top. These planks can be removed in the daytime, and replaced at night. Nothing but pure water must be used, no liquid manure of any sort. Do not prepare a large bed for exhibition purposes; one large enough to contain from twelve to eighteen plants is all that will be required, as, if the seed be good, nearly every root will be fit for the exhibition table under the treatment I describe, and with very few of the coarse fibrous roots at the side and tail. A model root for exhibition should be as nearly as possible the shape of a fairly grown Carrot, of moderate length and size, of the finest colour and texture, and free from the long coarse tail so often seen but not appreciated, being perfectly worthless for culinary purposes. Lift and prepare the roots for exhibition the same day as they are wanted, if possible, as the skin becomes somewhat rusty in colour if exposed for any length of time to the air and light.

THE TURNIP.

Of all our garden vegetables (Potatoes excepted) perhaps the Turnip may be classed among the most useful, and it therefore deserves the best cultivation that can be given to it. It will grow in shade and in sunshine, in poor ground and in rich, and will yield a plentiful supply, at least eight months in the year, if properly managed. Among the early sorts I think the Snowball is about the best, and for summer and autumn crop nothing can surpass Veitch's Red Globe, which, under many years of trial, I take to be the very best white-fleshed Turnip in cultivation. It has often been a matter of surprise to me why yellow-fleshed Turnips are not more cultivated. If people only knew their vastly superior quality and flavour over the white-fleshed varieties a place would be found for them in every garden. I remember a few years ago entering a dish of the Golden Ball Turnip at our Exeter Show, which for shape and quality were good enough to take a first at any show in England. What was my surprise to find that the judges had only awarded them "highly commended." On talking over the matter with my friend, Mr. Veitch, he told me that yellow-fleshed Turnips were not sufficiently known to be appreciated. I returned home thoroughly disappointed, but not beaten, for I resolved to offer a special prize for yellow-fleshed Turnips, in order that the public might judge of their quality for themselves. I trust the class will be better filled this year.

Soil and Situation.—To grow Turnips for the early autumn exhibitions a somewhat damp and half shady position should be chosen, in order that the growth may not be checked during the excessive summer heat. The soil should be moderately light, and a good quantity of vegetable ash may be incorporated with it, but no fresh yard manure. No doubt some have remarked that the tap root of a Turnip when pulled from stiff soil is hard and coarse, but seldom or never so when taken from deeply trenched light soil.

Time to Sow.—If roots are required for exhibition at the middle or end of August two sowings should be made, one about May 25th, the second about June 7th. It must be remembered that yellow varieties are slower in growth than the white, and therefore require a little longer time. The drills should be made 14 inches apart. Sow the seed thinly, but evenly. If the weather is hot and the soil dry, watch your bed, and as soon as you see the soil rising soak the bed with water in which softsoap has been dissolved at the rate of a tablespoonful to the gallon. The fly will sometimes have done their work of destruction before the young plants appear above ground. The softsoap mixture is a grand remedy, and will seldom have to be used a second time. If the ground is infested with wireworm a little mustard should be sown and trenched in the previous autumn. At the first thinning be very careful not to disturb or push on one side the plants you mean to leave, or imperfectly shaped roots may be expected. It is well to draw up a little earth round the young plants after the first thinning, in order that the wind may not blow them on one side. If moderately sized roots are required the plants may be left 8 inches apart at the final thinning, and if the leaves meet in the rows it will be all the better, for the ground will be kept moist and the roots shaded from the heat of the sun. Just before the plants begin to "bulb" put a good coating of vegetable ash over the whole bed. This will preserve the skin from the ravages of slugs. A model Turnip for exhibition should be as fair in the skin as an Apple, and without a single ring, spot, or inequality on its surface.

Size for Exhibition.—This is a matter which requires great reform, for at present no one seems to know what may take the particular fancy of the different judges from year to year. It would be well to fix a standard as to size, and if the judges would once and for ever ignore the gigantic specimens placed on the boards and award prizes only to specimens of the very highest quality and fair table size, a great object in the right direction would be gained and the beauty of our shows enhanced a thousand-fold. The general public visit our shows in order to inspect specimens of the highest excellence, and not such as they can grow and see in their own gardens any day.

Now it must be remembered that having grown our exhibition samples well we must be able to show them well. How sorry I have often felt when going the round of the exhibition tables to see really well-grown samples passed over by the judges, and all because they have been shown in a slovenly way. A highly respected old gardener gave me a piece of practical advice twenty years ago which I shall never forget. It was this:—"Sir, remember that a good dish of vegetables well shown is equal to a prize half won."

Exhibitors, as a rule, are a little shy about letting their fellow competitors know their special choice of varieties for exhibition; but, for my own part, I do not see why such a feeling should exist, as, after all, the best cultivator is sure to win, be the variety what it may. This can be plainly seen with regard to my Carrots, for since the first year I exhibited the Scarlet Model every exhibitor has done his level best to beat me with this same Carrot, but has not succeeded up to now; and in some cases no one would know that the samples exhibited were any relation to the Model at all. Among Potatoes the following are good sorts to grow for the purpose of exhibition, and for crop and quality as well:—Kidneys: Enterprise, Edgcote Purple, Reading Giant, Worsley Pride, The Cobbler, and Stourbridge Glory. Round Potatoes: Veitch's Prodigious (rightly named, and, in my opinion, one of the very best for cropping and table use; free from disease), The Dean, Early Puritan, Triumph, Windsor Castle, Renown, and Purple Perfection. In Beets I would recommend Pragnell's Exhibition, Dobbie's Dark Red (or Purple), and the Extra Fine Dark. In Turnips, Veitch's Red Garden Globe, Golden Ball, and Snowball.

In conclusion, I would only add, May our newly formed Association grow and prosper. A great need has now been supplied. There is a great amount of mutual help and encouragement to be obtained by uniting together periodically to discuss matters of common interest, and I feel proud to be able to call myself one of you. Of one thing I am certain, no one will leave our meetings, be he amateur or professional, without carrying away with him some useful hints to guide him in his future work.

An interesting discussion followed the reading of the paper, the opinion being freely expressed that at exhibitions judges should attach greater importance to quality and not so much to size as they did at present. The best time for planting Potatoes was freely discussed, and with the majority the middle of April found the most favour, regard, of course, being had to the earliness or lateness of particular districts. A hearty vote of thanks was awarded to Mr. Cruwys for his paper and also to Mr. Hope for reading it, and a similar compliment to the Chairman for presiding concluded the meeting.



MANDARIN ORANGES FROM INDIA.—Mr. T. A. Reed recently submitted to our inspection some excellent samples of Mandarin Oranges which he had brought from a friend at Nagpur, and owing to thorough ripening with careful packing they proved superior in flavour to any fruits of this distinct variety we had previously tasted. The Mandarin Orange has a peculiar loose rind most readily separated from the fruit, the juice is abundant, and possessing an aromatic flavour somewhat suggestive of the Tangierine, but much richer. The fruits are of moderate size, but larger than the variety just named. It appears that the Mandarin is rather extensively grown in the Nagpur district, and it is surprising that samples are not sent to this country for sale, as if carefully packed—an essential matter—they might be expected to realise good prices wherever high class fruit is in demand.

— **SOUTH AFRICAN PEACHES.**—Messrs. Donald Currie & Co. recently advised us that they had landed a trial shipment of South African Peaches from the Cape of Good Hope by the Royal Mail steamer, "Drummond Castle," and as they had arrived in good condition they were offered for sale by auction in Covent Garden Market on Friday last by Messrs. J. W. Draper & Co. The fruits were packed in shallow boxes, containing from thirty-five to forty-eight fruits, ordinary cotton wadding being used as the packing material, and the fruits appeared in nearly every instance as fresh and sound as if they had only been sent a few miles. The competition was very brisk, and the first case of thirty-five fruits realised 80s., the highest price obtained, the nine other cases bringing from 67s. to 20s. (the last being somewhat damaged). Such results as these will no doubt bring further consignments. We had no opportunity of testing the flavour of the fruits, and no names were furnished with them.

— **MESSRS. SPAULDING, JENNINGS & CO.,** West Bergen, Jersey City, N.J., write as follows:—"I note the article in the December 24th number of the *Journal of Horticulture*, and the comments on the **CHRYSANTHEMUM J. H. BRADBURY**. This variety originated with Richard Brett, then gardener for John R. Pitcher of Short Hills, N.J., many years ago. The variety Miss A. H. Bates originated with me about the same date. It was a creamy white, rather incurved, and inclined to be full. I cannot account for its being included among single varieties except it be a difference in climate alters its form."

— **DESTRUCTION OF SLUGS.**—Slugs are usually fully capable of taking care of themselves, at any rate, as far as frosts are concerned, but evidently they were scarcely prepared for those very searching frosts we had late in December. The ground being in a wet state, the frost penetrated surprisingly deep, and must have destroyed the greater portion of slugs, as there are remarkably few of them to be seen now in the paths during mild weather. In other winters we have hoped the frosts would have reached the slugs, but the latter apparently got well down out of the reach of severe cold, for they invariably turned up again in great numbers directly mild weather set in. What a relief it will be if the slugs really are largely got rid of. Only those in charge of heavy soils and old gardens know what it is to be over-run and pestered by slugs of all kinds.—I.

— **THE second annual meeting of the members of the GRIMSBY AND DISTRICT CHRYSANTHEMUM SOCIETY** was held in the Masonic Hall on Monday evening, February 1st. The chair was taken by Mr. J. Clark, Cromwell Nurseries. The first business was for the Secretary to read the report of the past year, and the statement showed a balance in the bank of £13 13s. 7d., and, considering it is only the second year of the Show, it is most satisfactory. Last year the Society paid £17 in prizes, this year they have paid £38 and two silver challenge cups, value 10 guineas. The following were elected on the Committee:—Messrs. G. B. Burrows, Jas. Emptage, Bellamy, W. H. Clark, J. W. Dobbs, J. Clark, F. Ilse, F. F. Gulliat, B. W. Smith, J. Cook, J. Walker, and W. Welton; and the following officers were elected:—Sir H. Bennett as President, Mr. Carr and Mr. R. Bannister as Vice-Presidents, Mr. A. Mountain as Secretary, and Mr. C. B. Barton as Treasurer. Much praise is due to Mr. Mountain for the way in which he has worked on the Society's behalf.—J. DOBBS.

— **GARDENING APPOINTMENT.**—Mr. J. England, who has been foreman at Hickleton Gardens, Doncaster, for the last five years, has been appointed head gardener to Lord Auckland, Edenthorpe, near Doncaster, and goes there on the 19th inst.

— **WE** are informed that the **WORKSOP ROSE AND HORTICULTURAL SOCIETY'S SHOW** will be held on Thursday, 21st July, 1892, when substantial prizes will be offered in classes for nurserymen and amateurs, including open classes for seventy-two distinct varieties, forty-eight varieties.

— **REPORT OF THE WEATHER AT HAMELS PARK.**—The weather during January was rather severe, the ground being covered with snow and sharp frosts prevailed, but, on the whole, was remarkably dry. Rain fell on six days, the maximum in any twenty-four hours being 0.22 on the 22nd; the minimum for any twenty-four hours being 0.06 on the 6th. Total during the whole month being 0.64, against 2.02 for 1891.—E. WALLIS, *The Gardens, Hamels Park, Buntingford*.

— **AT** the annual general meeting of the **BRIXTON, STREATHAM, AND CLAPHAM HORTICULTURAL SOCIETY** it was decided to hold the Autumn Show on the 1st and 2nd November at the New Town Hall, Streatham. A pleasing incident at the meeting was the presentation by exhibitors of the Society of a handsome salad bowl, fork, and spoon to the Hon. Sec., Mr. W. Roupell, with a hearty vote of thanks from the members for his services during the past year.

— **CHRYSANTHEMUM MRS. R. KING.**—Kindly allow me to inform Mr. Jones that my companion, Mr. Musk, Havertain Garden, Norwich, then Chrysanthemum grower to Mr. Blair, received two cuttings which went to Trentham, so that your correspondent will see his imaginary absurdity falls to the ground so far as Mr. Musk and myself are concerned "as to the whole of the genuine stock being in the hands of one person for distribution." If the person whom Mr. Jones claims to be the raiser hesitates to come forward, Mr. Jones will have no excuse for withholding his name.—S. BACKHOUSE.

— **PANSIES AT THE GREAT YORK GALA, JUNE, 1892.**—The York schedule is on the same generous lines as usual, substantial prizes being freely offered. Pansies have for some years been encouraged here, but this year the classes are considerably extended, and the great growers from the north intend competing in the open classes. The Exhibition comes in just at the height of the Pansy and Viola season, but not clashing with any other Pansy meetings; and extensive as the display of Pansy blooms was at York in June last, there is every probability of a larger display this year, and of the newest and finest varieties in cultivation.

— **THE WEATHER LAST MONTH.**—January was very cold during the early part of the month, with more or less fog from the 12th to 23rd, and snow on the night of the 5th, which lasted in some places until 26th. Total rainfall was 1.25 inches, which fell on seventeen days, the greatest daily fall being 0.35, which fell as snow on the 10th. Barometer, highest, 30.43, at 9 P.M. on the 25th; lowest, 29.21 at 9 P.M. on 7th. Highest shade temperature 53° on 29th and 30th; lowest 12° on the 12th; lowest on grass 11° on 12th. Mean of daily maximum readings 40.42°; mean daily minimum, 30.06°. Mean temperature of the month 35.24°. We had six bright days, one of which was clear. The garden spring ran 30 gallons per minute on the 31st.—W. H. DIVERS, *Ketton Hall Gardens, Stamford*.

— **BEDDING ASTERS.**—Kindly allow me to corroborate all that your correspondent "B." says on page 63 in praise of these beautiful Asters. I have never placed them out in separate beds, but I have used them frequently in a border set apart for annuals. This season, our flower beds being considerably augmented, I intend using them to greater extent. I have in my memory some beautiful beds which I saw at Croxteth Hall in the summer of 1890. I believe there were half a dozen in all, and the contrast they made with the carpet bedding and those filled with Pelargoniums will not soon be forgotten, none of the plants being above 8 inches high, fine and sturdy, and forming glowing masses of colour. My experience with these Asters scarcely coincides with your correspondent where he says the time of flowering is too quickly over. Of course, position and size of garden may have much to do with their soon being over, but if not coddled in their earlier stages, and when planting-out time arrives they are given a good rooting medium, they will stand as long as most bedding plants, and will assuredly prove of more value for cutting purposes than so many beds of Pelargoniums.—R. P. R.

— THE MIDLAND CARNATION AND PICOTEE SOCIETY'S EXHIBITION will be held at the Botanical Gardens, Edgbaston, Birmingham, on Saturday, August 6th, 1892. Honorary exhibits of other flowers will be accepted from subscribers to the Society, and handsome silver and bronze medals be awarded to any exhibits of sterling merit. Numerous prizes are offered in thirty-eight classes for cut blooms and plants.

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of this Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 17th instant, at 7 p.m., the following papers will be read:—"Report on the Phenological Observations for 1891," by Edward Mawley, F.R.Met.Soc.; "The Untenability of an Atmospheric Hypothesis of Epidemics," by the Hon. F. A. Rollo Russell, F.R.Met.Soc.; "The Origin of Influenza Epidemics," by Henry Harries, F.R.Met.Soc.; "Note on a Lightning Discharge at Thornbury, Gloucestershire, July 22nd, 1891," by Ernest H. Cook, D.Sc.

— YOUR correspondents, Messrs. Williams and Palmer (pages 491 and 539, vol. xxiii.), do not appear to be aware that *PANCRATIUM FRAGRANS* can be flowered oftener than once a year. Treated as has often been recommended for *Eucharis* they can be flowered twice and three times a year—or rather, I should say, in thirteen months, as I find they take about a month longer during the winter season. I do not find it is any detriment to the bulbs to subject them to such sharp practice. I have some now, three years old, 10 to 12 inches in circumference, and looking equally as well as others I have known that only flowered once a year. I should have written ere this, but have been a sufferer from the prevailing epidemic.—JAMES LLOYD.

— ECCLES, PATRICROFT, PENDLETON AND DISTRICT CHRYS-ANTHEMUM SOCIETY.—The annual general meeting of this Society was held on Friday, the 29th January, 1892, at the Christ Church Schools, Patricroft, Capt. James Andrew in the chair. The report, which was read by the Hon. Secretary, Mr. H. Huber, was in every respect a very satisfactory and encouraging one. The Society is a prosperous one, and their exhibition of Chrysanthemums is well known and patronised by the principal growers within a large district. Year after year they have made greater progress, so that the Town Hall, Eccles, is already too small for their show, and they have therefore decided to hold their next exhibition, which is fixed for Friday and Saturday, the 11th and 12th November, at the Drill Hall, Patricroft. Mr. J. Hooper, the Hon. Treasurer, read a statement of the accounts, showing an amount received during the past year in subscriptions of £111 11s. 6d., and a balance of £75 13s. 2d. to the credit of the Society. The following officers and members were elected on the Committee of Management for the present year:—Chairman, Mr. H. Larmuth; Vice-Chairmen, Mr. Wm. Elkin and Mr. James Derbyshire; Hon. Treasurer, Mr. John Hooper; Hon. Secretary, Mr. H. Huber; Committee—Mr. John Bayley, Mr. Jos. Bonsor, Mr. James Bradley, Mr. John Briddon, Mr. John Clarke, Mr. John Heskeith, Mr. Rich. Johnson, Mr. Geo. Lee, Mr. John Parr, Mr. John Roberts, Mr. James Smethurst, Mr. Wm. Smethurst, Mr. John Turner and Mr. W. B. Upjohn.

— DEATH OF MR. JOHN ROBERTS.—On the 23rd of January last at Charleville Forest Gardens, Tullamore, died the veteran Grape grower of Ireland, Mr. John Roberts, head gardener to Lady Emily Howard Bury. After an illness of but two days' duration he succumbed to an acute attack of pneumonia, brought on by influenza. He had reached the sixty-second year of his age, and the thirty-sixth year of his service in the Charleville family. Mr. Roberts was the faithful servant of five members of this house, including three Earls, having been engaged by the third Earl of Charleville while in the Pine Apple Nursery, London. Previous to this he had served Lord Ellsmere at Worsley Hall, Lord Windsor at Hewell Grange, and Sir Joseph Redcliffe, Bart., at Rudding Park. As a gardener, the late Mr. Roberts was very successful. He had an intense love for horticulture and for arboriculture also; this, together with the gift of a rare intelligence and a liberal education, was the means of advancing him greatly. It was as a Grape grower, however, that he made his mark, and at the Shows of the Royal Horticultural Society of Ireland, held in Dublin, he always swept the board. His exhibits were at such times surrounded by a circle of admirers, and "The Charleville Grapes again," passed from mouth to mouth. Several times he carried the war into the sister islands, and wrested victory from noted and able opponents, as at the Internationals held in Manchester and Edinburgh. During his career as an exhibitor he gained over fifty medals, among which were several of the much-coveted Veitch Memorial medals. Mr. Roberts was the raiser of an improved variety of the Gros Guillaume Grape, known by

his name, and exhibited several very large bunches, one of which weighed over 23 lbs. He was held in great esteem by all who knew him, and was highly valued by his noble and generous employers as an old and faithful servant. Some years ago he was taken out to Algiers by the Countess of Charleville, for the purpose of laying out the gardens and grounds attached to the winter residence of the family in that place. He leaves a widow, five sons, and two daughters to mourn his sudden demise. His son-in-law, Mr. R. McKenna of the Chief Secretary's Gardens, Dublin, succeeds him.—B.

— PRUNING VINES.—When giving my experience on the above I did not intend to enter into any controversy or make any attempt to criticise Mr. Dunkin's remarks. I simply gave my experience on close pruning, and quoted his advice on leaving the shoots 2 feet long. Although I referred to a case of Black Hamburgh, I did not mention that variety in quoting his advice, which I think Mr. Dunkin will find if he will read my note more carefully. When I said there would not be sufficient space to train the young growth, I alluded more especially to that part beyond the bunch. Even in the case of Vines being in an unsatisfactory state (as Mr. Dunkin says his advice was intended for), I am doubtful if it would be the best means of securing a crop. I quite agree with him that the ordinary methods of pruning would have to be departed from, but at the same time if a good bud could not be found under 2 or 3 feet from the spur, the Vines would be best consigned to the rubbish heap. In one of the vineries under my charge there is only about 2 feet between the rods. I question if Mr. Dunkin could apply his long-spur system to these. I can assure him that it requires a little of the ingenuity he speaks of when closely pruned to get the necessary growth in without overcrowding. While speaking of these Vines I might say there is never any difficulty in securing a good bud close to the spur; in fact the best buds are, as a rule, at the base of the shoot. We all know that young Vines are required to produce extra large bunches, but in the majority of cases I am sure good samples of Grapes can be produced year after year on closely pruned Vines if other details of cultivation are properly carried out.—H. S.

— VINE CULTURE IN THE MEDOC.—The U.S. Consul at Bordeaux gives, in a recent report, some interesting information about the wines of the Medoc district. He notes that this district, between the sea on the one hand and the Garonne and Gironde Rivers on the others, is called Medoc (*quasi medio aquæ*), because nearly surrounded by water. It is the northern termination of the extensive tract of sand hills and marsh land called "Les Landes," extending from Bayonne north, which changes to a bank of gravel on approaching the left bank of the Garonne, and contains some of the most precious vineyards in the world. The soil is of light pebble, and, indeed, on the spots where some of the best wine is produced it appears a mere heap of quartz mixed with the most sterile quality of earth. The best wine is not produced where the bush is most luxuriant, but on the thinner soils, where it is actually stunted, and where weeds disdain often to grow. Here the Vine retains the sun's heat about its roots after sunset, so that its juices are matured as much by night as by day. The accumulation of sand and pebbles of which this soil is composed is apparently the spoils of the Pyrenean rocks, brought down by the torrents tributary to the Garonne and other great rivers, and deposited in former ages on the borders of the sea. At a depth of 2 or 3 feet from the surface occurs a bed of indurated conglomerate, which requires to be broken up before the Vine will grow.

— THE Meteorological Council have just issued a useful publication entitled "TEN YEARS' SUNSHINE IN THE BRITISH ISLES, 1881-90." The observations have been taken at forty-six stations, well distributed over the country—except for Scotland and Wales. At the great majority of stations the instrument used is the Campbell-Stokes sunshine-recorder, which focusses the sun's rays, by means of a glass ball, on to a card fixed in a brass frame. The instrument records only bright sunshine, which burns the card when no mist is present, or no cirrus or other clouds obstruct the rays. The tables show that December is the most sunless month of the year. Jersey stands first on the list of stations, as it does in nearly all other months of the year, having 23 per cent. of possible duration, while Dublin has 21 per cent., and St. Ann's Head 20 per cent., and London has a miserable record of 2 per cent. A great increase is noticeable in February, when Jersey has the greatest amount—viz., 31 per cent., and London the least, 9 per cent. In April London begins to compare more favourably with other places situated in the suburbs, and May is the sunniest month of the year, while June and July are by no means as sunny as might be

expected. August is a good month, except in the north-west of Ireland and Scotland. September and October exhibit a considerable decrease and November is the only month in which the Channel Islands are not the most sunny part of the British Isles. The sea-coast generally is more sunny than inland parts, while large manufacturing cities, such as Glasgow, compare badly with stations in their neighbourhood. In the late autumn Ireland generally receives more sunshine than the most of England.—(*Nature*).

A NOTE ON NEW ROSES.

THERE is one subject connected with the season of the last year which is always a matter of unfailing interest, that of new Roses.

Nothing of any moment absolutely new has been brought forward, with the exception of *Marehioness of Dufferin* (Messrs. A. Dickson & Sons), which gained the gold medal of the National at Hereford, a beautiful light rosy pink, of fine form and good size. Of these already shown we have again to record the admirable way in which Margaret Dickson (Messrs. A. Dickson & Sons) has maintained its claim to be considered our finest white Hybrid Perpetual. Its size and great substance of petal and handsome foliage alike stamp it as a most valuable acquisition; in fact it is, without question, the finest white Hybrid Perpetual that we have. A stand of them exhibited at the Crystal Palace again attracted much attention, as it also did at Hereford. Of the two gold medal Roses of last year little has been seen



FIG. 16.—ROSE MARGARET DICKSON.

These now come from two sources, our home productions, and those from the Continent. With regard to the latter I think the performance every year falls off more from the promise, and in looking at the lists, which were sent out with the usual flourish of trumpets, it is astonishing to see how very little is said or thought of them now. I am not writing only of those of last autumn, but of those of 1889 also. Indeed, it is hardly to be expected that we should see much of the former. Growers are so busy with them in renewing their stock that they cannot very well exhibit them, and even if they did, but little could be known of them from such exhausted plants; but neither years have anything of special interest amongst Hybrid Perpetuals, while one or two amongst Teas are highly spoken of, but have not been much seen. It is amongst our home-raised flowers that we are to look for the real accessions to our

nor was it likely, except from the raisers, as those who had obtained plants would be more anxious to obtain wood for budding than blooms for exhibition.

I do not think that there is much to notice in the way of Tea Roses. One or two *Medea* and *Waban* have been highly spoken of but they have not, as far as I recollect, been seen on the exhibition Table. One, *Corinna* (Messrs. W. Paul & Son), was very promising.

Messrs. Cocker & Son of Aberdeen have announced two new Roses: *Duke of Fyfe*, a crimson sport from *Etienne Levet*, and *Duchess of Fyfe*, a pink sport from *Countess of Rosebery*.—(*The Rosarian's Year Book*.)

MESSRS. ALEX. DICKSON & SONS have raised many excellent Roses as the result of cross-fertilisation, to which some gave the title of

pedigree Roses. Earl of Dufferin, Lady Helen Stewart, Miss Ethel Brownlow, and James Dickson have sufficiently shown this success, but I doubt if any of its predecessors are so likely to be such favourites as Margaret Dickson. It was raised between Merveille de Lyon (believed to be a sport from Baroness Rothschild) and Lady Mary Fitzwilliam. The flower is of large size with great substance of petal, of great substance and shell-like in their character; colour white, with pale flesh coloured centre, and as the flower opens the white becomes more decided. The habit of growth is vigorous, the stems very thorny, reminding one of one of its parents; the foliage is very thick and almost leathery in their appearance, probably suggesting that it will be little subject to mildew, and altogether it will be a most valuable addition to our white Perpetuals, probably leaving all other white flowers in the background.—D., Deal.

[Our illustration of the beautiful Rose Margaret Dickson (fig. 16) was prepared from one of the blooms shown at the Crystal Palace, and above mentioned.]

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 9TH.

THE COMMITTEES.

THE Drill Hall presented the aspect of a Spring Show on Tuesday last, for nearly the whole of the available space was occupied with groups of plants or cut flowers and collections of Apples. Extremely bright and varied were the exhibits for a February meeting, and the Fellows who were attracted by the business of the day found an agreeable surprise awaiting them. Novelties were also numerous, as may be judged from the fact that over twenty certificates or awards of merit were recommended by the Committees.

FRUIT COMMITTEE.—Present: Philip Crowley, Esq. (in the chair), Dr. R. Hogg, and Messrs. J. Lee, R. D. Blackmore, Harrison Weir, W. Wilks, G. W. Cummins, J. Cheal, G. Bunyard, A. W. Sutton, G. Taber, T. J. Saltmarsh, A. Dean, W. Bates, G. H. Sage, G. Wythes, J. Hudson, J. A. Laing, H. Balderson, J. Smith, F. Q. Lane, G. Norman, and G. T. Miles.

Apples were exceedingly well represented at this meeting, fresh handsome fruits being contributed by three exhibitors. A. H. Smee, Esq., The Grange, Wallington (gardener, Mr. Cummins), had 100 dishes of Apples and Pears in excellent condition (silver-gilt medal). Messrs. J. Cheal & Sons, Crawley, sent sixty-nine dishes of Apples and Pears, also admirably fresh and bright (silver medal); and Lord Foley, Ruxley Lodge, Esher (gardener, Mr. Miller), exhibited thirty dishes of fine Apples (silver medal). The Duke of Northumberland, Albury Park (gardener, Mr. W. C. Leach), sent several dishes of well-developed Mushrooms, for which a cultural commendation was awarded.

Mr. T. H. Crasp, Canford Manor Gardens, Wimborne, submitted some very attractive samples of a white Seakale termed "Canford Lily White," with the following statement:—"This variety, which I have found to be a distinct type of the lily white Seakale, has been grown by me during the past two years, and has given great satisfaction. It is much hardier than the ordinary type, also superior in flavour and colour." The Committee expressed a wish that it should be tried at Chiswick, and several favourable opinions were subsequently expressed concerning the exhibit.

An award of merit was granted to Mr. W. Crump, Madresfield Court Gardens, Malvern, for Apple May Queen. This is a seedling Apple, and is rather below medium size, of a Reinette shape, and highly coloured. It was rather dry in the flesh, and appeared as if it was past its best.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), and Messrs. J. Laing, B. Wynne, H. Herbst, C. T. Druery, C. F. Bause, R. Dean, C. Jeffries, W. C. Leach, R. B. Lowe, G. Phippen, W. H. Williams, C. E. Pearson, C. J. Salter, H. Cannell, C. Noble, J. Fraser, G. Paul, T. W. Girdlestone, E. Mawley, H. B. May, H. Turner, R. Owen, F. Ross, with the Rev. H. H. D'Ombrian.

Several handsome groups of plants were submitted to this Committee, notably that from Messrs. Laing & Sons, Forest Hill, which included a choice collection of Orchids, with other flowering plants, Palms, Ferns, Dracenas, and Bertolonias, the latter very beautiful (silver-gilt Banksian medal).

Hardwooded and other greenhouse plants formed a pleasing group. From Messrs. H. Low & Co., Clapton, the beautiful *Acacia Drummondii*, *Boronia heterophylla*, *Chorozemas*, *Ericas*, *Eriostemons*, and *Pimeleas* being conspicuous (silver Banksian medal). *Cyclamens* were capitally shown by the St. George's Nursery Co., Hanwell; Mr. T. Walker, Hounslow; and Mr. J. May, Twickenham; and a silver Banksian medal was awarded for each group, the plants being healthy well-flowered specimens of the best market type.

Bertolonias from Mr. C. F. Bause, Moorland Nursery, South Norwood, attracted much notice, for these handsome plants are too seldom seen. Four varieties were shown, and for two of these first class certificates were awarded, the others being Madame Ed. Pynaert, the leaves veined and spotted with purplish pink on a dark green ground, and Madame Aug. Van Geert, which has leaves veined and spotted with pink and silver on a similar ground colour. A small group of select *Primulas* from Messrs. H. Cannell & Sons, Swanley, comprised an extremely fine

white variety, Cannell's Triumph, remarkable for the size, substance, and purity of the flowers.

The Hon. P. C. Glyn, Rooksnest, Godstone, Surrey (gardener, Mr. J. Friend), sent some large branches of the graceful *Acacia dealbata*, loaded with its fragrant pale yellow flowers; cut blooms of *Camellias*, and a fine *Clivia* came from the same garden (silver Banksian medal). A few late *Chrysanthemums* from Mr. R. Owen of Maidenhead may be said to have closed their season, Golden Gem was the best; W. W. Coles was fairly good; and a seedling from Edward Audiguier was very dark in colour and promising. Messrs. J. Veitch & Sons, Chelsea, had some sprays of flowering shrubs from their Coombe Wood Nursery, *Lonicera Standishi*, with abundant white flowers, and *Amygdalus Davidiana alba* and *rubra*, very neat flowers, freely produced, were noteworthy; *Lachenalia aurcliana*, with large deep red green tipped flowers, were also represented. Messrs. F. Ross & Co., Bletchingley, sent flowers of the graceful *Oxera pulchella*, said to be the true winter flowering variety. From the Royal Gardens, Kew, came flowers of *Bomarea frondosa* and a large bunch of seeds of *Caryota Cumingi*, also an enormous globular crimson flower head of *Brownea Cawfurdii*, and the pretty bright red *Greyia Sutherlandii* (fig. 17). From Syon House Gardens a basket of *Amaryllis* and *Daffodils* was sent by Mr. Wythes (vote of thanks).

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq., in the chair; Messrs. De B. Crawshaw, H. M. Pollett, H. Ballantine, T. W. Bond, N. Cookson, C. J. Lucas, S. Courtauld, J. Douglas, H. Williams, F. Sander, W. White, E. Hill, J. Jaques, Jas. O'Brien, and T. B. Haywood.

Orchids were represented by numerous interesting exhibits, and rarely at this season of the year have so many first-class novelties been shown. The trade groups were of especial merit, particularly those from Messrs. B. S. Williams & Son, Upper Holloway (silver Flora medal); H. Low & Co., Clapton (silver-gilt medal); and F. Sander & Co., St. Albans (silver Banksian medal), which comprised a large number of flowering plants, and produced a brilliant display. Mr. J. Crispin, Nelson Street, Bristol, and Messrs. Seegar & Tropp, Dulwich, also showed Orchid flowers and plants of interest, Messrs. J. Veitch & Sons having several of their novelties.

Amateurs exhibited admirably, contributions coming from Sir Trevor Lawrence, Bart., M.P.; Baron Schröder, The Dell, Egham; Lord Foley, Esher; Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne; C. Ingram, Esq., Elstead House, Godalming (gardener, Mr. F. W. Bond); J. Statter, Esq., Stand Hall, Whitefield (gardener, Mr. R. Johnson); W. R. Lee, Esq., Beech Lawn, near Manchester; D. O. Drewett, Esq., Willowswood, Riding Mill-on-Tyne; R. I. Measures, Esq., Camberwell; J. F. Ebener, Horton House; F. Wigan, Esq., Clare Lawn, East Sheen; E. G. Wrigley, Esq., Victoria House, Dukinfield, Cheshire; and F. W. Moore, Esq., Glasnevin. Most of these sent cut flowers, but in a few cases plants were shown, and the best of the exhibits are described in the following list of certificated plants.

CERTIFICATED PLANTS.

Elais melanococca (B. S. Williams & Son).—A handsome Palm of bold sturdy habit, the leaves pinnate and dark green, the pinnæ 9 inches long, and 1 inch broad. This appears to be a Palm that is likely to prove of much decorative service (first-class certificate).

Bertolonia Comte de Kerchove (C. F. Bause).—A handsome variety, with large elliptical leaves, regularly veined and spotted with bright pink on a dark green ground (first-class certificate).

Bertolonia argyreneura (C. F. Bause).—Very distinct from the preceding; the ground colour a light bright green with silver veins and dots, extremely beautiful (first-class certificate).

Clivia Mrs. P. C. Glyn (the Hon. P. C. Glyn).—Distinguished by the great size of the well-formed flowers, which are of a bright orange red colour, with a white centre, and arc borne in dense trusses (award of merit).

Lilac President Grévy (G. Paul & Son).—A fine double white Lilac, the flowers of excellent shape, and very pure (award of merit).

Dendrobium splendidissimum var. *Leeanum* (W. R. Lee, Esq.).—Differing from the type in the great size of the flowers, the central blotch in the lip being also of a very rich shade. The plant shown was bearing an abundance of flowers, indicating its freedom (award of merit).

Odontoglossum crispum, var. *nobilis* (Baron Schröder).—A magnificent variety, the flowers of great size, beautiful shape and proportions. The broad sepals are heavily blotched with bright brown; the petals are similarly broad, fringed at the margin with a few bold spots in the centre; the lip is small, the upper half white with yellow crest and a few brown blotches at the base. It is said that this remarkable variety was purchased at the Orchid Conference in 1885, and had never flowered since until the present year (first class certificate).

Cypripedium Juno (D. O. Drewett, Esq.).—A hybrid between *C. Farrieanum* and *C. callosum*, showing most of the characters of each parent in combination; the colour is distinct, the deep purple veins in the dark sepal being prominent (first-class certificate).

Cypripedium Ceres (D. O. Drewett, Esq.).—A hybrid from *C. hirsutissimum* and *C. Spicerianum* marked by a rich purple tint suffusing the whole flower (award of merit).

Cypripedium Lindleyanum (D. O. Drewett, Esq.).—More curious than beautiful, the lip brownish and the sepals and petals greenish (botanical certificate).

Zygopetalum leucochilum (J. Veitch & Sons).—A hybrid between *Z. Burkei* and *Z. Makayi*, the flowers small and neat, the lip pure white (first-class certificate).

Cypripedium insigne, Cambridge Lodge Variety (R. I. Measures, Esq.).—Very distinct, flowers small, but the dorsal sepal is heavily and densely spotted with brown and purple, and margined with white (award of merit).

Dendrobium Falschi (Sir T. Lawrence).—A graceful little Orchid, the slender spikes bearing clusters of diminutive flowers, the sepals and petals narrow, linear, twisted, and white; the lip purple (botanical certificate).

Trichocentrum triquetrum (Sir T. Lawrence).—A peculiar Orchid with small flowers clustered near the base, the lip funnel-shaped, yellow with orange dots, the sepals and petals pale dull yellow (botanical certificate).

Lycaste Youngi (Sir T. Lawrence and Messrs. B. S. Williams & Son).—A very free and useful winter flowering Orchid, the flowers of medium size, the petals and lip bright golden yellow, the sepals pale buff. The Burford Lodge specimen had over forty flowers expanded (award of merit).

Iris histrioides (J. Laing & Sons).—A charming dwarf Iris, with purple "standards," and rich purple blue "falls," spotted and veined in white. Excellent in pots (award of merit).

Odontoglossum Pescatorei Schraderianum (Baron Schröder).—A beautiful variety with rounded flowers, white dotted with warm purple at the base of the sepals and petals (first-class certificates).

Dendrobium Cassiope (Norman C. Cookson, Esq.).—One of the most graceful and floriferous Dendrobiums yet raised, as, though the flowers are comparatively small, they are produced in astonishing numbers, clothing the pseudo-bulbs densely for the greater part of their length. The sepals and petals are narrow, white, of a crystalline texture, the lip tipped purple. It resulted from a cross between *D. japonicum* and *D. albiflorum* (award of merit).

ANNUAL MEETING.

The annual general meeting was held in the Council Chamber, 117, Victoria Street, at 3 P.M. The President, Sir Trevor Lawrence, Bart., M.P., presided, and there were present the Rev. W. Wilks, Secretary; Mr. P. Crowley, Treasurer; Baron Schröder, Messrs. G. Paul, T. B. Haywood, H. J. Veitch, J. Cheal, A. Pearson, G. Bunyard, W. Marshall, A. W. Sutton, L. G. Sutton, D. Morris, H. Williams, C. Pearson, J. Douglas, H. Turner, Dr. Masters, Dr. Hogg, Professor Michael Foster, and a large number of Fellows.

The Secretary read the minutes calling the meeting, and then proceeded to read those of the last general meeting. These having been accepted the Secretary read the names of those seeking election as Fellows, numbering sixty-seven, and these were elected *en bloc*. This was stated to be the largest number ever joining on one occasion. The Report (which follows) was taken as read, and the President, rising to make some comments upon it, stated that the keynote was contained in the first paragraph. It had been a year of steady work and progress, a statement that the details of the report fully endorsed. He thought more interesting fruit and floral displays had never been held, and was glad that the public appeared to be more and more appreciative. No one could fail to see that the Drill Hall was a most unsuitable place for their meetings and exhibitions, but it was the best they had at present. He said "at present" advisedly, for he did not relinquish the hope of some day having a more suitable place.

With regard to the work of the Committees, he thought it was not too much to say that there was hardly any new introduction or new variety that was not shown to and recognised by them. He claimed that the Committees were recognised arbiters and judges, especially of new kinds, and the Society felt itself under a great obligation to the members.

It appeared to be the universal opinion that a more complete and beautiful Exhibition than the last Temple Show had never been held, and the Society was under a great obligation to the Treasurer and Benchers of the Inner Temple for the facilities afforded for holding the Show; and not only were visitors satisfied, but the exhibitors, he thought, were so also. He hoped that an equally attractive and varied Exhibition would be held next May.

Of the Conferences held, that on Conifers eclipsed all the others in extent and interest. The Exhibition was a most complete and attractive one, and he thought the results would be of great interest and importance. Good results also might be expected to follow the Sunflower Conference, as the nomenclature and classification, which were formerly in a chaotic condition, would be put on a more satisfactory footing.

The usual trials had gone on at Chiswick, and the results, as shown in Mr. Barron's able reports, were as valuable as heretofore. The Journal had been published regularly, and he hoped the reports were satisfactory. It was of importance because of the large increase in the number of country Fellows, and the annual increase in the number of the latter enabled them to keep abreast of the expenses of the Journal. There had been a large increase in the number of Fellows, amounting to 344, and the net increase in income amounted to £448. They had been able to carry over a balance of £218 on the year's operations.

He referred to the small pamphlet on fruit that had been drawn up for the benefit of cottagers and small farmers. One edition had been prepared for England, and one for Scotland, and 52,000 copies had been issued. A considerable number had been distributed in his own constituency.

The work in connection with the maintenance of Chiswick, which a very large number of Fellows considered to be a cardinal feature in the

operations of the Society, had been more satisfactory than in previous years. £1914 had been spent, out of which about £200 was devoted to rebuilding house No. 6, the work in connection with which had been well done by Messrs. Weeks & Co.

With a view to sharing usefully in the work of technical education now being conducted by the county councils the Society had been in communication with them with a view to conducting examinations and possibly awarding certificates. They thought it their duty to promote the object in view, and with the experience and knowledge at their command he thought they could give such assistance as no other body could supply.

He noted with satisfaction the increase in the number of affiliated societies, which now amounted to thirty-seven, as reciprocal benefits accrued. He also pointed out that the Council had decided to again



FIG. 17.—GREIGIA SUTHERLANDI.

offer money prizes, £515 being set apart for that purpose this year; and he trusted that it would bring more and better competition than in the past. He referred to the fortnightly lectures, and expressed the indebtedness of the Society to those who had delivered lectures or prepared papers, and also to the Hon. Secretary and Treasurer. The latter, though new to the work, had discharged the duties to the satisfaction of the Council and the advantage of the Society. With regard to Mr. Wilks, he thought no greater blow could be administered to the Society than if he found himself unable to give his services to it.

With regard to the proposed horticultural hall, he was sorry to say that the Council found themselves in a difficulty, and had considered that they could no longer hold gentlemen who had volunteered support to their promises; still, the Council had not abandoned the idea of a hall. If financial troubles had not arisen, rendering money less abundant, he thought they would have succeeded in carrying out the scheme, which owed so much to Baron Schröder. Such a hall ought to exist, and in due time would exist, he thought, in London. For the present the matter was in abeyance, but he hoped that later on there would be no difficulty in raising the money. In conclusion, he expressed an opinion that the general affairs of the Society were in a very satis-

factory condition, and moved the adoption of the report; this was seconded by Baron Schröder, and carried.

The balloting to fill three vacancies in the Council and to elect officers for the ensuing year was then proceeded with. The vacancies caused by the retirement of Sir J. T. D. Llewelyn, Bart., and Messrs. E. A. Hambro and Martin R. Smith were filled by the appointment of Sir Herbert Maxwell, Bart., M.P., and Messrs. Owen Thomas, and C. J. Lucas. The officers elected were as follows:—President, Sir Trevor Lawrence, Bart., M.P.; Treasurer, Philip Crowley, F.L.S.; Secretary, Rev. W. Wilks, M.A.; Auditors, Harry Turner, Henry Williams, and A. H. Pearson.

Professor Michael Foster moved a vote of thanks to the retiring members, and also to the other members of the Council. He stated that he always found it more easy to blame than to praise, but in this instance he could not do other than express approval. He was glad that the question of education and examination was receiving attention. He had had special experience in regard to education, and knew that the question was a very difficult one; he had confidence in the Council, however, and thought that any scheme to which they gave their support was likely to succeed. He thought that the idea of conducting examinations was a good one, and considered that it was work the Society might well put its hand to. He regretted that the scheme for a horticultural hall was not being proceeded with, but was confident the great Baron was only having a nod, and would soon come out with a fresh plan. Mr. H. J. Veitch seconded the resolution, which was carried.

Baron Schröder thought that the meeting might perhaps like to hear a few remarks from him respecting the hall. He felt that all would regret that the scheme could not at present be followed up, but he had not yet given up hope that they would some day have a hall. The body of the Society was getting so large that soon its skin would burst. When that happy moment arrived they would get the hall, and he hoped to have a hand in it.

Mr. Wilks called attention to the fact that notwithstanding the increase in the number of Fellows, necessitating increased postal and other expenses, the establishment expenses were £42 13s. less than in 1890, and £80 less than in 1889. Some thought the Journal expenses heavy, but he desired to point out that the subscriptions from new Fellows exceeded the cost of the Journal, and nine-tenths of them were, he considered, brought in by the latter. Referring to the compulsory retiring of certain members of the Committee and Council every year, he stated that this was an unpleasant duty forced upon the Council by the Charter, and in order to avoid any appearance of casting a slur upon them by so doing he moved that the following note in respect to the retirement of three members of the Council—"R means that the removal of the member against whose name the letter is placed is recommended"—be altered, and in future read: "R means that the member against whose name the letter is placed retires in accordance with bye-law 81."

Mr. Marshall thought a bye-law could not be altered without notice but Mr. Wilks pointed out that the Charter contained nothing to that effect.

Baron Schröder then seconded the resolution, which was carried.

A vote of thanks to the Auditors of the past year (Messrs. H. Turner, H. Williams, and A. H. Pearson) was passed, and on the motion of Dr. Hogg, seconded by Mr. Balderson, a vote of thanks to the Chairman was passed, and with his acknowledgment the meeting closed.

REPORT OF THE COUNCIL FOR THE YEAR 1891-1892.

THE year 1891 has again been one of steady work and progress for our Society.

Four conferences have been held at Chiswick—viz., on Hardy Summer Perennials; on Strawberries, Raspberries, Currants, and other small fruits; on perennial Sunflowers and Michaelmas Daisies, and on Conifers. The attendance of Fellows and others at these conferences, as also at the fortnightly lectures in the Drill Hall, has been decidedly more encouraging than in previous years. Fellows would greatly assist the Council by making these meetings and lectures better known among the general public.

Seventeen fruit and floral meetings have been held in the Drill Hall, besides those held at Chiswick, and lectures have been delivered at fifteen of them. The number of awards has been as follows:—On the recommendation of the Floral Committee, thirty-three first class certificates against forty in 1890, 183 awards of merit against 117, four commendations against two last year, and eight botanical certificates. On the recommendation of the Orchid Committee, thirty-four first class certificates against fifty-six last year, thirty-eight awards of merit against forty-seven, ten botanical certificates against nine. On the recommendation of the Fruit and Vegetable Committee six first class certificates against six, and seven awards of merit against seven last year; commendations one.

The Society's great Show held (by the renewed kindness of the Treasurers and Benchers) in the Inner Temple Gardens, and opened by Her Royal Highness the Princess Christian, was as great a success as ever, alike in the number of visitors, the quantity and quality of the exhibits, the propitiousness of the elements, and the consequent pecuniary result. The best thanks of the Society are due to all who so kindly brought their plants for exhibition or otherwise contributed to the success of this Show.

The conference on Conifers, held at Chiswick on the 7th and 8th October, was most unfortunate in the weather experienced and in the

consequent smallness of the attendance of Fellows. In all other respects it was most successful, the papers read being most valuable, and the exhibition of specimens such as has certainly never been gathered together in one place before. The report on the conference is being kept back in order that the lists of Conifers may be made quite complete, with their synonyms and short descriptive notes, a work which entails an enormous amount of labour and reference. It is hoped that the volume may be ready in March.

The Society's general work of scientific experiment and investigation, and the practical trial of various plants, has been going on steadily at Chiswick under the superintendence of Mr. Barron. Trial has been made of 117 varieties of Tomatoes, forty-eight of Turnips, thirty-one of Celery, thirty-three of Leeks, forty-three of Runner Beans and forty-nine of Dwarf French Beans. Ninety-seven new varieties of Potatoes and seventy-two new Peas have been tested. In the floral department 225 varieties of Carnations, fifty of Picotees, and fifty of Pinks, 300 Dahlias, sixty Ivy-leaved Pelargoniums, fifty-nine Violas and seventy-four Pansies, fifteen different strains of China Asters, 116 Fuchsias, and thirty-two of Sweet Peas, have been tried. A very large collection of perennial Asters (Michaelmas Daisies) and Sunflowers have been grown, and very carefully examined by a committee of experts, both in regard to their proper nomenclature, and also their value as hardy border flowers. The confusion found amongst them was so great and so widespread that it has been decided to withhold the Committee's report until the plants shall have flowered again, and the Committee's decisions verified and confirmed. Experiments have also been made with a fruit evaporator, kindly presented to the Gardens by Messrs. Mayfarth, and most satisfactory and encouraging results have been obtained in the drying of both Apples and Plums.

The Society's *Journal* has been continued so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those more actively engaged at headquarters. Three parts, forming vol. xiii., 646 pages, with sixty-nine plates of new plants, &c., have been published during the twelve months, and letters are constantly received from the most distant and diverse sources testifying to the Fellows' appreciation of this renewed branch of the Society's work.

The Council wish to repeat *verbatim* one paragraph of their last year's report, which runs as follows:—All these conferences and meetings, and especially the work and maintenance of the Chiswick Gardens and the publication of the *Journal*, have involved the Society in a very large outlay, and the Council take this opportunity of endeavouring to impress upon Fellows the absolute necessity there is for them all individually (as many as have the Society's welfare at heart) to endeavour to secure new Fellows to the Society if its work is not only to be continued at its present standard, but still more so if the ever-opening and extended opportunities of usefulness are to be embraced and accepted. The adoption of £1 ls. as one rate of subscription was, no doubt, a popular movement, but the Council desire to remind the Fellows that such a low rate of Fellowship can only be self-supporting if it draws into the Society a very large number (far larger than at present exists) of additional Fellows. The Council, therefore, venture to express the hope that every Fellow of the Society will make an endeavour to obtain at least one new Fellow during the present year. A statement of the privileges of Fellows and of the aims and objects of the Society, together with a form of nomination to Fellowship, is for this purpose enclosed with this report.

The following table will show the Society's progress in regard to numerical strength during the past year:—

DEATHS IN 1891.				FELLOWS ELECTED 1891.			
		£	s. d.			£	s. d.
Life Fellows	21	0	0 0	4 Guineas	3	12	12 0
4 Guineas	1	4	4 0	2 "	97	203	14 0
2 "	12	25	4 0	1 "	305	320	5 0
1 "	10	10	10 0	Associates	3	1	11 6
	44	£39	18 0	Affiliated Societies ..	24	26	5 0
					430	£564	7 6
				Deduct Loss		115	10 0
				Net Increase in Income ..		£448	17 6
RESIGNATIONS.							
		£	s. d.				
4 Guineas	3	12	12 0	New Fellows, &c.		430	
2 "	21	44	2 0	Deduct Resignations and			
1 "	15	18	13 0	Deaths		36	
	42	£75	12 0	Numerical Increase		344	
TOTAL LOSS ..	36	£115	10 0				

The most noticeable features in last year's work, besides the Conifer Conference, were the issue of a pamphlet on fruit trees, recommended for cottagers and small farmers, and the improvement of the condition of the gardens at Chiswick. The fruit pamphlet* was purposely issued at a price below the actual cost, in order to promote as wide a circulation as possible. Two editions have been prepared, one for England and another for Scotland. Of these, 52,000 copies have been put into circulation, 13,000 being issued at the expense of the Society.

In round numbers about £1728 has been expended at Chiswick this

* See Journal, vol. xiii., pt. 3, p. 411.

year on the general work and repairs and keeping up the Gardens. A further sum of about £200 has been laid out in special repairs—viz., in the rebuilding of house No. 6 and in furnishing a new boiler, &c., to the great vinery. The receipts from the Gardens by sale of surplus produce amount to about £630, making the net cost of the Gardens about £1300.

The Council of the Society have been in communication with several county councils with respect to the lectures on gardening which are now being given in many parts of the country, and have undertaken to conduct examinations on behalf of any county council so wishing it, at the conclusion of these courses of lectures, and to award suitable certificates, &c., to proficient students.

The Council regret that the scheme for the erection of a horticultural hall has for various reasons been for the present abandoned and the guarantors released from their promises of support. It is hoped, however, that at some future time when circumstances are more favourable these promises may be voluntarily renewed.

In conjunction with the Lindley Library trustees, the Society's library has received considerable attention. All serial publications have been kept up to date, a large number of valuable volumes have been bound, and the following new books, amongst others, added to the library—viz., "Art and Practice of Landscape Gardening," "Manipulations de Botanique Medicale," "Census of the Grasses of New South Wales," "Die Veredelungen und ihre Anwendung für die verschiedenen Bäume und Sträucher," "Flora Bulgarica," "Laubholzkunde," "Nadelholzkunde," "Orchids, Culture and Management," "Pflanzenleben," vol. 2.; "Revisio Generum Plantarum," "Orchid Album," &c.

The best thanks of the Society are due to all those who, either at home or abroad, have so kindly and liberally presented books to the library or plants or seeds to the Gardens. A list of the donors has been prepared, and will appear in the next number of the Journal. The Council also wish to express, in their own name and in that of all Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the conferences and fortnightly meetings. Special thanks are due to those who so kindly contributed Conifer specimens for the Conference in October.

The hearty thanks of the Society are due to the Chiswick Board and to all the members of the standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments; also to the exhibitors who have contributed to so great an extent to produce the valuable results of the various conferences held.

The Council have the sad duty of recording the death of forty-four Fellows during the year, and amongst them they regret to find the names of the Duke of Devonshire, Earl Granville, Earl of Dartmouth, Sir R. Wallace, the Right Hon. W. H. Smith, J. Van Volxem, W. A. Dickson, J. Dominy, C. Haycock, W. Richards, W. Barron.

During the last few years the Council have, amongst other matters, been considering methods of interesting amateurs more in the Society and its work, and of rendering to them a greater personal return for their subscriptions. To this end they have already established the fortnightly lectures, and the great Temple Show; have promoted various conferences on interesting horticultural subjects, and have revived the publication of the Journal. In 1890 they further decided to re-establish the Society's ancient custom of offering prizes to amateurs, and a schedule was circulated in the "Arrangements for 1891." The Council regret that these prizes attracted so little competition, but they have decided to continue them again in the year now commencing, and a total sum of £515 will be found offered, as it is possible that the schedule last year was hardly sufficiently known.

A scheme for the affiliation of local societies was put forward last year, and about forty local societies have availed themselves of it. The Council express the hope that Fellows will promote the affiliation of societies in their own immediate neighbourhood.

Attention having lately been directed to the desirability of establishing a National School for Technical Education in Gardening and Spade Industry, the Council have consented to co-operate with the Worshipful Company of Gardeners in the matter. The Council have not thought it right without a special mandate from the Fellows to devote any portion of the Society's income to this purpose; but they think it highly desirable to afford the undertaking the use of all the existing facilities at Chiswick. An arrangement is therefore in course of preparation whereby a Home will be opened at Chiswick, in the joint name of the Society and the Company, for students of the age of fifteen to eighteen, and a three-years course of practical lessons will be given in the Gardens, accompanied by elementary lectures on Plant-Life and Chemistry, and other branches of study helpful to Gardening, the whole of the expense being borne by the Company, the Gardens supplied by the Society, and the management placed in the hands of a joint Committee. The Superintendent is of opinion that the work of the students can be so arranged as in no way to interfere with the present use of the Gardens.

A proposal has been made to hold an International Fruit Show in London this autumn, and the Society has been invited to join in carrying it out. The Council have appointed the Chairman of the Fruit Committee as a delegate to the Provisional Committee, and they hope to be able to give cordial support to the proposed Show.

ANNUAL REVENUE AND EXPENDITURE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1891.

Dr.		£	s.	d.	£	s.	d.
To ESTABLISHMENT EXPENSES:							
Salaries and wages..	..	300	18	8			
Rent of office ..	..	123	3	0			
Printing and stationery ..	..	144	16	2			
Publications—Journal, &c. ..	..	536	9	0			
Postage ..	..	72	2	8			
Coal, gas, and water ..	..	3	6	2			
Miscellaneous ..	..	43	14	10			
					1224	10	6
„ SHOWS, MEETINGS, and CONFERENCES:							
Rent of Drill Hall and cleaning..	..	92	16	0			
Special shows—Temple ..	..	534	10	11			
Others ..	..	39	3	2			
Advertising ..	..	18	0	0			
Prizes and medals ..	..	164	18	0			
Printing, &c. ..	..	57	8	4			
Labour ..	..	87	8	11			
Superintendent of flower shows ..	..	50	0	0			
					1044	5	4
„ CHISWICK GARDENS:							
Rent, rates, taxes, and insurance ..	..	293	6	3			
Superintendent's salary ..	..	225	0	0			
Labour ..	..	669	5	1			
Manure, implements, &c. ..	..	92	10	1			
Coal and coke ..	..	184	19	11			
Repairs ..	..	148	4	7			
Special repairs ..	..	196	10	0			
Water and gas ..	..	17	11	5			
Miscellaneous ..	..	82	0	11			
					1914	8	3
„ HORTICULTURAL HALL ..					37	1	1
„ BALANCE TO GENERAL REVENUE ACCOUNT ..					218	16	8
					£4439	1	10

Cr.		£	s.	d.	£	s.	d.
By ANNUAL SUBSCRIPTIONS ..					2806	18	4
„ SHOWS—TEMPLE:							
Tickets, advertisements, donations, &c. ..	..	614	13	1			
„ Meetings and conferences ..	..	26	15	0			
					641	8	1
„ Advertisements ..					147	4	0
„ Miscellaneous:							
Sale of Journal and reports ..	..				37	10	5
„ Dividends:							
Davis bequest and Parry's legacy ..	..	56	18	4			
Interest on deposits ..	..	5	19	11			
					62	18	3
„ Prizes and medals..					33	9	0
„ Fruit pamphlet ..					44	7	0
„ CHISWICK GARDENS:							
Produce sold..	..	623	4	3			
Admissions and members' tickets ..	..	5	5	6			
Miscellaneous ..	..	6	17	0			
Chiswick Horticultural Society ..	£36	0	0				
Less:							
Expenses ..	..	6	0	0			
					30	0	0
					665	6	9
					£4439	1	10

We have examined the above accounts, and find the same correct.

(Signed) HARRY TURNER,
HENRY WILLIAMS, } Auditors.
A. H. PEARSON,
HARPER BROS., Chartered Accountants.

22nd January, 1892.

BALANCE SHEET, 31st DECEMBER, 1891.

		£	s.	d.	£	s.	d.
To SUNDRY CREDITORS..					299	4	3
„ Subscriptions, 1892, paid in advance ..	..				90	8	0
„ Donations ..	..				345	0	0
„ GENERAL REVENUE ACCOUNT:							
Balance, 1st January, 1891 ..	..	1796	15	1			
Less:							
Subscriptions for 1890, not paid and bad debts ..	..	30	0	3			
					1766	14	10
„ Balance for the year 1891, as per Revenue Account ..					218	16	8
					1985	11	6
					£2720	3	9
		£	s.	d.	£	s.	d.
By SUNDRY DEBTORS:							
Annual subscriptions outstanding ..	..	31	10	0			
Garden produce ..	..	86	0	7			
Temple Show donations ..	..	14	14	0			
Rents ..	..	96	0	0			
Advertisements in schedules ..	..	49	7	6			
					217	12	1
„ INVESTMENTS:							
2½ per cent. Consols £2122 8s. 9d., cost..	..				1892	11	3
(£2022 8s. 9d. of this sum is held by the Society, subject to the provisions of the will of the late J. Davis, Esq.)							
„ CASH AT LONDON AND COUNTY BANK:							
On current account ..	..	260	15	7			
On deposit account ..	..	345	0	0			
„ Cash in hand ..	..	4	4	10			
					610	0	5
					£2720	3	9

We have examined the above accounts, and find the same correct.

(Signed) HARRY TURNER,
HENRY WILLIAMS, } Auditors.
A. H. PEARSON,
HARPER BROS., Chartered Accountants.

22nd January, 1892.

WINTER PRUNING.

I WAS much interested in the article on page 35 written by my old friend Mr. Luckhurst. "Pruning," he says, "is a science." True, but how many gardeners understand it? I remember some twelve or thirteen years ago your able correspondent and myself had quite a long controversy on this subject. His contention then was to get strong wood, for without this he said it is impossible to have fine fruit. I remember well the long shoots on his Peach trees, and used to chaff him about his "bamboo fishing rods"—"flower sticks" he now terms them. It would seem that our friend has now come to understand that it is not strong barren shoots, but healthy fruit buds that are required. If anyone will take the trouble to turn over the pages of the *Journal of Horticulture* for the beginning of the year 1880, he will find several articles written by Mr. Luckhurst on pruning, but a change appears to have taken place since then. He now asks "What is the use of all such growths?" "What is the use of such pruning?" Then he goes on to say that every society for the mutual improvement of gardeners should take these queries into consideration for discussion at their next meeting. What queries? Bamboo fishing rods? Then follows, "If it is required to retain growth within prescribed limits recourse must be had to root-pruning to check undue growth." This is good and sound, but coming from a man who has hitherto told us that strong growth is needed to produce fruit, sounds rather odd. But then follows, "The first year or two after planting the trees should not be allowed to fruit." I wonder how many gardeners would fail to take a crop of fruit from a tree the first year after planting provided it were possible to do so without injury. I have taken fifteen dozen as fine fruit from a Peach tree the year after planting as are usually seen on a show table; and last season, though the spring was so ungenial, I had the satisfaction of growing some bushels of Apples on trees that were planted the previous autumn; each fruit would have done credit, not only to a Royal show, but to any show in the kingdom, for some of them weighed a pound and a quarter. The trees show no signs of exhaustion, neither have they any of those attenuated growths our friend talks so much about. Each growth made is from a foot to 18 inches long, well ripened, and is now studded with fruit buds which promise well for another season.

I quite agree with your correspondent, and am glad to find that he too has at last come to understand that it is not bamboo fishing rods that are required for producing fine fruit, but wood that has been well ripened. Fruit trees, like "short-horn cattle" and "Sussex chickens," may, through the help of man, be brought to a state of maturity in less time than is usually supposed. The old adage was, "Men who plant Pears plant for their heirs," and "He who plants a Walnut tree seldom lives the fruit to see." It is not only planting that those who desire good crops must study, neither is it altogether pruning; the great secret lies in keeping the trees in that state of healthful productiveness in which the great majority of would-be teachers fail. I have seen trees which have never had a knife on them that are now between twenty and thirty years old, yet seldom fail to produce crops of fine fruit. It should be the cultivator's aim to produce fruit on trees as early as possible, at the same time taking care that in so doing he does not in any degree cause deterioration, and if this can be done the first season after the trees are planted so much the better.

Why do we have cordons? Simply because by that mode of training we are able to get fruit earlier than by any other. It would seem, according to Mr. Luckhurst's statement, that it is useless to procure fruiting trees, for we are to wait two or three years before we allow them to fruit. If this be so, better by far to plant maidens and wait till they grow. To sum the whole matter up in a few words, if by superior management trees can be made to produce fine crops of fruit in the same season they are planted without injury, this will show that science in fruit culture has made some progress.—H. C. PRINSEP.

[We have no recollection of seeing in any garden a more abundant supply of superior fruit of different kinds than from trees planted four years previously by Mr. Luckhurst. They combined freedom of growth with productiveness, much in the same way as is exemplified at Cardiff Castle by Mr. A. Pettigrew, who does not believe in precocious pigmies.]



FRUIT FORCING.

VINES.—*Earliest Forced in Pots.*—Where the bunches have been properly thinned and not too many retained, the Vines will push laterals, but overburdened with fruit they come to a standstill, and the fruit suffers more or less; therefore to aid such Vines cut out all the eyes in the axils of the leaves below the bunch on each shoot, taking care not to injure the leaves. This will assist the Grapes in swelling and finishing, and may cause the shoots to push laterals above or on a level with the fruit. The laterals beyond the bunches will require pinching at every joint where the space is limited, rubbing off those below them, but where there is room those in advance of the fruit may be allowed more freedom, tying them down to the trellis. Top-dress the soil with half fresh turf

in lumps as large as a hen's egg and sweet horse droppings in equal parts, adding to every bushel a quart of superphosphate and two quarts of wood ashes, mixing well. To maintain the top-dressing in position peg strips of reversed turves around the rim, or strips of zinc 4 inches wide may be placed within the rim of the pots, thus forming a receptacle for the top-dressing. If the pots are standing on loose brick pedestals and fermenting materials are placed loosely round the pots, liberal supplies of stimulating liquid may be more frequently given than when they are tightly plunged to the rim, and in all cases where the pots are to remain undisturbed until the Grapes are ripe the roots may be allowed to follow the liquid through the loose brick pedestals and the plunging material, and the fruit is fine in proportion to the number of active feeders.

Early Forced Planted-out Vines.—Give the needful attention to stopping, tying, and thinning, removing surplus bunches before they have time to rob the Vines, for that prejudices the current and next year's crop. A judicious thinning of the bunches does not always mean a corresponding reduction in weight when the Grapes are ripe, and it always tends to good finish. Let the laterals extend as much above the bunches as the space warrants, but do not allow more to be made than can be duly exposed to light, making allowance for an increase of growth through stopping. Liquid manure in a weak and tepid state may be given inside borders, mulching with a little short manure from the stable to give off ammonia, but avoid excessive quantities, as too much ammonia injures the foliage, whilst a little is beneficial. Damp the house in the morning and at closing time or early in the afternoon, ventilating a little between 70° and 75°, and keeping through the day at 80° to 85° from sun heat. Close so as to maintain that temperature or run up to 90°, the temperature at night falling to 65° or 60° in the morning of cold nights, maintaining 70° to 75° by day artificially, or 5° less if cold and dull.

Early Muscat Houses.—In some places these finest of all Grapes, are required at an early season; even Frontignan Grapes, much as they are esteemed, do not supply the place of Muscat of Alexandria, and to have them ripe early, or by June, which is as soon as they may be relied on, they require to be started about the middle of December, and to be brought on steadily, as in too close and moist an atmosphere the foliage becomes thin and very liable to scorch. Where the house was closed at the time named the bunches are now approaching the flowering stage, and should be given a night temperature of 65° to 70°, with a rise of 10° to 15° by day, closing for the day between 80° and 85° when bright weather prevails. When the bunches are in flower they should be carefully brushed over with a camel's-hair brush, fertilising every bunch with its own or Black Hamburgh pollen, and so treated the Muscat of Alexandria and Black Muscat (Muscat Hamburgh) usually set well. The latter is very prone to produce seedless berries, which is not always overcome by fertilisation, as the ovaries are defective, but it is an aid to better set bunches, and Black Muscat ripens much earlier and in a lower temperature than is required by Muscat of Alexandria, which requires some time in ripening, the wood being thoroughly ripened and the roots having the benefit of a warm inside border. This must be mulched or top-dressed with lumpy material, through which the roots must be well fed. They are supplied with superphosphate 3 lbs., nitrate of potash 1 lb., sulphate of lime 1 lb., mix, and apply at the rate of 4 ozs. per square yard, when the Vines are starting into growth, and again when the fruit is thinned. Double quantity may be given when the rooting area is small and the Vines carrying heavy crops. Blood formed into a powder by adding the requisite quantity of dry wood ashes is one of the best fertilisers for Vines, applying a good couple of handfuls per square yard from the Vines starting into growth at six-week intervals up to the Grapes commencing to colour. The waterings wash the fertilisers in fast enough.

Succession Houses.—Attention must be given to disbanding after the bunches show in the points of the shoots, tying the latter down before they touch the glass, stopping them a couple of joints beyond the fruit, and pinch the laterals below the bunch at the first leaf, and above allow them to extend, but only to cover vacant space with foliage fully exposed to light. Remove all surplus bunches before they flower, and maintain a moderate amount of moisture, even after commencing to flower, damping occasionally, keeping a temperature of 65° to 70° at night, and 70° to 75° by day artificially, with a gentle circulation of air. If there is any lack of moisture in the borders give a thorough supply before the flowers open. Houses to afford ripe Grapes in July must now be started, watering the inside border thoroughly with tepid water or weak liquid manure, damping the rods two or three times a day, and maintaining a temperature of 50° at night, 55° by day, advancing to 65° from sun heat.

Late Houses.—The Vines having been cleared of Grapes early in January, pruned, and the inside border top-dressed with fresh loam with a quart of steamed bonemeal and two quarts of wood ashes to every bushel of loam, and the house kept cool so as to insure rest, a good supply of tepid water should be given, and a start made without much further delay, as it is essential to the Grapes keeping well that they be thoroughly ripened by the middle of September. Depress strong rods and young canes to a horizontal position or lower, and seek an even break by syringing them three times a day. Keep the temperature at 55° at night, rising 5° to 10° by day or more from sun heat.

PEACHES AND NECTARINES.—*Earliest House.*—The past month, and the present so far, have fairly favoured forcing operations, and where proper attention has been given to ventilation, fertilising the blossoms, and the maintenance of a snitable temperature—steady and low

at night—the set of fruit is satisfactory. Any late-blooming varieties still in flower should have the flowers brushed over daily, either with a camel's-hair brush or feather, though shaking the trellis answers in many cases, especially when the house is kept rather dry with a moderate circulation of air until the flowers begin to fade, when a slight syringing with tepid water will soon bring off the remains of the flowers. Peach trees in inside borders always do better than those having the roots in cold outside borders, and they will set the fruit in a lower temperature, and any apparent lateness will be recovered rapidly as days increase in length and brightness. Undue haste causes many disasters in forcing, but success attends the safe—because sure, steady, progressive method. Disbud cautiously and shorten shoots that were left full length at pruning time to a growing bud on a level with or above the fruit. In disbudding take off the foreright shoots first, commencing with the upper and upright part of the trees, and work down to the horizontal branches at the base. Fumigate on the first appearance of aphides, but not whilst the trees are in flower, and be careful not to give too much, as the foliage and fruit are very susceptible of injury. Keep the surfaces near hot-water pipes constantly moist, and supply liquid manure to the roots. Sprinkle a few horse droppings on the border occasionally for giving off ammonia, and acting as a check to red spider; but avoid heavy mulching, as these encourage wood at the expense of the fruit, and must not be given until the stoning process is completed. Maintain a day temperature of 55° artificially, 50° at night, and 60° to 65° by day, with a little ventilation and gleams of sun, ventilating fully above 65°, being careful to avoid cold currents, and close sufficiently early to raise the temperature 10° from sun heat above the ordinary day temperature.

Succession Houses.—Trees started with the year have the flowers expanded, and will need less atmospheric moisture, syringing the trees being discontinued, yet damping available surfaces occasionally to secure a genial condition of the atmosphere. Trees started with the month should be syringed until the blossoms commence opening, and where the blossom buds are thick remove those on the under side of the trellises. Before the flowers expand it is a good practice to fumigate the house on a calm afternoon when the trees are dry to destroy any aphides that may exist, and so keep the trees free from those pests until the fruits are set. Inside borders must not lack moisture, therefore, if there is any doubt on this point give a thorough supply of tepid water, or liquid manure if the trees are enfeebled by repeated forcing or need succour.

Late Houses.—The blossoms in these have been kept back by the weather and are in promising condition. Where the lights have been removed they need not be replaced until it is wanted to start the trees or the blossom buds are advanced in swelling, and it is not safe to longer expose them. Trees under fixed roofs must have the inside borders kept moist, and freely ventilated so as to keep the trees in good condition for giving full crops of fruit. Lifting and re-arranging trees in late houses may still be proceeded with, bringing such operations to a close as soon as possible, yet avoid working about trees and in borders in bad weather, for it only converts the soil into mud and it bakes and cracks afterwards, forming an impermeable mass or letting the water through it by the fissures.

THE KITCHEN GARDEN.

BROAD BEANS.—The winter has not been favourable to the preservation and progress of late autumn-sown Beans, and the rows are very patchy. They transplant readily, and in all cases where there are many gaps it is advisable to either break up two or three short rows or one long one, and make good the others, or else the requisite number may be raised under glass, two seeds being sown in each 3-inch pot; and after the plants are duly hardened off they can then be planted out where required. Unless particularly needed it scarcely pays to raise this class of Beans under glass, as in most cases sufficiently early crops can be had by sowing seed now, either on warm border or in a sunny, open position. Broad Beans thrive best in a fairly rich, deeply and well-worked soil, and ought never to be much crowded. The best for present sowing are Beck's Green Gem and a good form of Early Longpod, and they ought to be sown rather thinly in drills drawn 2 feet apart and 3 inches deep. It is, as a rule, too early to sow the more delicate broad-podded varieties, the seed of these being liable to perish in cold wet ground.

EARLIEST PEAS.—These are not so much sown in November as they used to be, growers preferring to raise the plants under glass, turning them out into the ground where they are to grow before they are much root-bound. Furves, troughs, pots, and boxes are all variously used for sowing the seed in, the two last being perhaps the least trouble and answer well. William L., of the moderately tall varieties, and William Hurst and Obelisk Gem, both dwarf varieties, equally productive and of excellent quality, are very suitable for the earliest crops, though, if preferred, one of the extra early podding round-seeded sorts may be substituted. Sow at least one quart of seed, and not too thickly, in either pots or boxes filled with fine loamy soil, or something from which those plants raised in boxes can be readily shaken clear without damage to the roots. Place in a newly started vinery or peach house, and transfer to cooler, light quarters before the plants become badly drawn. After being duly hardened they must be planted out and lightly protected. The border intended to be cropped with these early Peas ought, if not already ready, to be freely manured and dug in order that it may be well pulverised by the time wanted. Peas succeed well on a south-east border, and if the dwarf varieties mentioned are put out or sown in rows 2 feet apart early Kidney Beans can later on be sown or planted midway

between them, both crops being among the most profitable that can be grown on warm borders.

SOWING PEAS IN THE OPEN.—When some of the early podding varieties are sown on warm borders or in the open on ground sloping to the south, not later than the middle of February, these will be ready to gather from only a few days later than those over which trouble has been expended. The small early wrinkled-seeded varieties already named may be sown thus early on warm borders and in light soil; but the seed is liable to rot badly in heavy, cold ground, and ought to be kept out till nearer the end of the month. Many of the varieties described as attaining a height of 3 feet, or rather less, not unfrequently grow considerably taller, and the rows ought, therefore, to be about 4 feet apart, or otherwise they may overcrowd and spoil each other. The plan of arranging the rows of moderately strong growers about 10 feet apart on a warm border, disposing four rows of either a dwarf variety, Beck's Green Gem Bean, or Cauliflowers between them answers well. Thus arranged the tall Peas crop heavily, and also afford some shelter to the other crops between them. Early Peas not branching, or not being required to branch very strongly, it is advisable to sow the seed rather thickly, one pint being none too much for a drill or drills equal to a length of about 40 feet. If the ground cannot be got into a finely divided state, the best that can be done is to surround the seed with light sifted soil, burying it in any case a depth of about 2 inches. Should there be any mice in the garden they are certain to find the Peas, it being scarcely possible to deter them from the surface. Damping the seed and well rolling it in powdered red lead prior to sowing is the best preventive measure that can be tried.

SPINACH.—The Victoria or Monstrous Viroday will be found to hold out much longer than the older forms, but all the same it is advisable to raise more plants as early as possible. Spaces between rows of Peas are generally utilised for producing a quick crop of Spinach, and the first favourable opportunity ought to be taken of sowing the seed. Sow rather thickly in shallow drills, and thin as soon as the thinnings are large enough to use. A liberal dressing of soot, distributed carefully among the rows of Winter Spinach, and well stirred in with the flat hoe, will greatly increase the vigour of the plants, the crops being heavier and better accordingly.

ONIONS FOR EXHIBITION.—In order to have extra fine spring sown Onions, fit for exhibition in August and later, the plants must be raised under glass, and after being duly hardened transplanted to a rich well-prepared bed in the open. Thus treated they invariably take a strong lead, and are superior in every way to any that may be sown in the open during the next few weeks. These extra fine varieties of the White Spanish type, and which are found to be the best for exhibition purposes, are rather expensive and sold in small packets, but if the seed is sown now in pans of fine and fairly rich soil, and placed in a moderately warm house, all will grow, and not a plant need be wasted.

ONIONS KEEPING BADLY.—Owing to the bulbs harvesting badly they are not keeping so well as usual, and there is every likelihood of large quantities spoiling unless the precaution is taken of planting them out rather thickly on good ground. If not too far advanced in growth late frosts will not hurt them, and when other Onions are scarce those planted out can be lifted and split up, each division having a swollen base suitable for flavouring soups and other purposes to which Onions are put.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

THE weather for a week ending February 5th has been changeable, but seasonable. The storms and floods experienced in the north we have as yet escaped. January had its usual mild days near the end of the month, favourable to feed bees in want, and enabled them to air themselves without loss. From several reports to hand, a good many stocks on the verge of starvation have been saved by timely feeding. It is much safer to feed bees during January and February than to defer it till March, the most critical in all the twelve to feed or to disturb bees. Nature should have its own course during that month. Flowers have made but little progress since January 1st. Our first Snowdrop drooped its head on the 4th February, but a few days more will brighten our borders with a profuse display.

If bees appear to be in imminent want feed liberally at the earliest moment possible, from beneath wherever practical. Where solid floors are in use, clean them on a day the bees are likely to fly; and if the floors can be well heated before replacing them that will strengthen the bees and enable them to air themselves without falling victims to the cold air and ground. A

frequent cleansing of the under floor of the ventilating floors will speedily make an effectual clearance of the bee lice where they exist, and of course where fumigators are necessary are easily applied.

PREVENTION OF SWARMING.

In all the matter that has been written upon that subject I have failed to discern anything satisfactorily explaining how it could be prevented, or in any case where the labour was in any way reduced, but rather multiplied many times. This not only holds good in our own country, but in America as well. Many of the articles are cleverly written, but most, if not all of them, betray the lack of experience.

It is not worth while to repeat the errors that have been made in hive construction the past fifteen years, nor that which prompted the recommendation of hives quickly thrust upon bee-keepers, and which have fallen as quickly into disuse. Our aim and purpose will be better illustrated by simply describing the working of hives in our own apiary, which are every day becoming more popular.

There are different ways of looking at the subject, and different ways of treating it. But it must be borne in mind that bees with their regnant queen cannot be prevented swarming, only when a young laying one has been introduced, with additional breeding space, and even this is a preventive for a limited time only.

Then where swarms are wanted it would be folly to prevent it. But the greatest folly of all is to return swarms in the expectation of putting a stop to it. My aim is to reduce labour with the certainty of success and that no bees be lost, which is very simple.

Our hives enable us to examine all the brood combs without removing the supers whenever I observe a hive showing signs of swarming. I may mention here that all apiaries should have a decoy hive or bee lodge, an upright cork-covered box, in some part of the garden; on the top of this box or lodge there is a moveable one with a piece of comb. Before swarming the bee scouts will be seen to frequent it. I explained this some seven or eight years ago. When the bees are seen to fly about searching odd crannies and places, and the bees becoming listless and rallying alternately, particularly in the afternoon, and at times extra busy, that hive may be marked as one about to swarm.

When the bee-keeper's suspicion is grounded on these observations he should do as I do, uncover the hive, turn back the uppermost division with its supers; a feather saturated with carbolic acid pushed between the combs enables us to see its state, then the under division frames are examined; if there are no queen cells in formation we close it quickly and recover it.

If there are queen cells, and not wishing it to swarm, the queen, if not valuable, is removed, and in a week's time all the queen cells are destroyed and a young fertilised queen is introduced; a week's laying of eggs in that case is sacrificed, but I can, if necessary, make that up, but it is seldom necessary.

If a swarm is wanted, it is the proper time to take it, so we search for the queen and remove the frame, with her on it, putting her and it into the hive previously prepared for the new colony upon the old hive's stand, removing the latter to some distance where the flying bees may not discover it. Of course we make certain the swarm is of full strength, and we sometimes give the swarm the half of the old stocks' combs, and either contract it or fill up the space with full-sheeted frames. In a week's time more of the queen cells are disposed of as may be required.

I have frequently performed this artificial swarming in a few minutes, and in far less time than if it had been allowed to swarm, and in a more satisfactory manner, and that too without the risk of losing either queen or swarm by flying off or joining with another one.

All other work of the apiary may either be suspended a little time or performed a little earlier when circumstances demand it and business prevents immediate attention; but swarming must be

attended to at the right time to prevent loss and disappointment. The foregoing plan obviates all that, and enables the gardener, banker, clerk, or whatever he may be, to perform much necessary work in his leisure hours at any time of the day, and all to his satisfaction and profit.—A LANARKSHIRE BEE-KEEPER.



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post and we do not undertake to return rejected communications.

Books (C. W.).—You will find the information you require respecting Figs in Mr. D. Thomson's "Handy Book of Fruit Culture Under Glass" (Blackwood), price 7s. 6d. "The Orchard House," by T. Rivers is the other book you appear to want. (F. S.).—Probably you refer to Du Breuil's "Scientific and Profitable Culture of Fruit Trees" (Lockwood), price 3s. 6d. (J. T.).—"The Tomato," by W. Iggulden, post free, from this office, 1s. 1½d.

Material for Greenhouse Blinds (Mrs. T.).—The best material for your purpose would probably be the lighter description of "striped holland," which, being linen, does not shrink like cotton, and is not so subject to mildew. We have used it many years in conservatories, and found it serviceable, only it must be taken care of in winter, and not rolled up when wet and left so.

Yellow Soil (A. P.).—The yellow loam is almost fibreless, but appears of a substantial nature, containing little grit. If you add one-fourth of leaf mould to it and one-sixth of drift sand, incorporating all together, it would be suitable for growing Chrysanthemums, but we should have liked it better had it contained more fibre. That, however, can be overcome by judicious feeding.

Forming a Gravel Tennis Court (E. H. S.).—It is entirely a question for a builder or pavior. All that is necessary is to make sure that the ground is properly under-drained, then supply a suitable thickness of rubble, say 6 inches, on a solid bottom, and finish with the coating of cement concrete, the cost being about 4s. per yard; but the price varies with different localities, and the manner in which the work is done.

Top-dressing for a Lawn (F. J.).—Take two parts of wood ashes and two parts of slaked lime, and one part of soot, all by measure and quite dry, mix thoroughly, applying at the rate of a peck per square rod (30½ square yards). Now is the best time to use the dressing, but in mild weather only. If there is much moss the mixture, in destroying it, will cause the lawn to look brown for a short time, yet it will soon recover and become quite beautiful in colour, and not rank in growth, provided there is enough grass to form a good turf.

Planting Beech Trees (C. P.).—Beech, as you have proved, is the tree for planting on a limestone stratum, and it does well near the sea. As the season is getting advanced, and March is often a dry, bad planting month, we should defer planting until autumn, having the stations prepared for the trees during the summer, trenching the ground and removing the roots of the trees that have been cut down. This will give the young trees a chance, though the established trees will find out the moved and aerated soil, and fill it quickly with roots. That is the difficulty in getting young trees established near those that already occupy the soil with their roots.

Plum Trees as Bushes (A. H. Ellis).—Plum trees answer well as bushes or pyramids, lifting them every two or three years to induce fruitfulness when they grow too luxuriantly, or to induce early bearing. The pruning is of the simplest kind, merely requiring shortening the growths that grow too strongly about midsummer, and stopping side growths at about six leaves, keeping the branches thin, and cutting stopped shoots to an inch of their base in autumn, thinning the spurs where crowded, and shortening elongated, so as to keep the trees furnished with bearing wood, whilst the light penetrates right down to

the base of the branches. The article to which you allude is applicable to Plum trees.

Magnum Bonum Pea—Varieties for Middle and Late Season (D. I.).—Our correspondent asks, "Can you inform me who was raiser of this (Magnum Bonum Pea), and where the true stock can now be procured?" Perhaps some reader can supply the desired information. For a succession of Peas of the highest quality, of "good rich flavour" we have found Criterion, Duke of Albany, Prodigy, Telephone, Ne Plus Ultra, and British Queen excellent in the tall growing, and in the dwarf varieties, Dr. Maclean, Stratagem, Veitch's Perfection, Maclean's Best of All, Omega, and Sturdy very satisfactory under high culture, which is necessary with all Peas to secure first class quality.

Pear Easter Beurre (S. S. B.).—The description in the last edition of the "Fruit Manual" is as follows:—"Fruit, large; obovate. Skin, at first pale green, changing as it attains maturity to yellowish green, thickly strewed with russety dots, which are larger on the side next the sun, and a few patches of thin brown russet, particularly round the stalk and the eye, and with sometimes a brownish tinge next the sun. Eye, small, with long narrow incurved segments, and set in a rather deep and uneven basin. Stalk, an inch long, stout, inserted in a narrow and pretty deep cavity. Flesh, white, buttery, and melting, very juicy, richly and highly flavoured. A dessert Pear of the highest merit; in use from January to March. The tree is hardy, a good bearer, and succeeds well either on the Pear or Quince stock. It frequently happens that this delicious Pear is of an indifferent and insipid flavour, which is caused by unfavourable soil. If grown against a wall on a south exposure it should be gathered before it is quite ripe, otherwise it is apt to become mealy. The best and richest flavoured fruit is either from a pyramidal or espalier tree. Mr. Blackmore says that at Teddington 'it cracks and spots, and is very seldom good.'" It has a great many synonyms; no less than twenty are enumerated in the work quoted.

Potting Alocasias (M. G.).—Yes, they should be potted now, and to ensure their success the whole of the old compost should be removed from their roots annually, for the very best material in one season becomes too much decomposed. Where the root portion of the stem of these plants is too long to allow of them being lowered in the pots in which they are to be placed, a good portion may be removed without injury to the plants. As growth extends they root freely from the collar and upper portion of the stem, and if placed sufficiently low in their pots at the commencement they can be top-dressed with rich material during the growing season. Alocasias do well in a compost of fibry peat and sphagnum moss in nearly equal proportions, with large lumps of charcoal freely intermixed. The former should predominate, and a good layer of the moss should be placed over the surface after potting has been completed. The pots or pans should be about one-third filled with drainage, and the centre of the plants well elevated above the rim. The material advised for potting should be pressed as firmly as possible into pots as the work proceeds—that is, if the crowns are separated. In many instances this need not be done, as the old material can be washed from amongst the roots without separating the crowns. If possible plunge them in bottom heat to give them a start, and keep them in a close moist atmosphere. The root portions of the stem, if young plants are needed, may be cut up into lengths and laid amongst sandy soil in pans, and placed into the propagating box until they break into growth, when they can be potted singly, or a number placed together in each pot.

Cypripediums in February (J. J. W.).—Such species as *C. villosum* and *C. venustum* will be benefited by removal to a temperature of 45° or 50° while in bloom. They grow afterwards with increased vigour, for they will rest thoroughly under such treatment. Although these plants have no pseudo-bulbs and cannot be kept so dry during their resting season as many Orchids, they nevertheless must have a period of rest, which can only be induced by a lower temperature and slightly drier conditions. While in a cool house very little water should be given, and when this becomes necessary that supplied to them must be several degrees warmer than the house. The plants of *C. insigne*, so useful for various forms of decoration, that have flowered may be top-dressed with peat and sphagnum moss, removing as much of the old material as possible. If the plants are much root-bound a little cow manure in a moderately dry state may with advantage be applied to the surface. Any plants that it may be deemed advisable to repot should have the pans or pots broken in which they are growing, and any portions to which the roots firmly cling must be left attached. The whole of the old compost should be carefully washed with tepid water from amongst their roots. Allow them to drain thoroughly, and then repot them in the same or larger pans. The pots may be at the least one-third full of drainage, and the compost—peat and charcoal—in good-sized lumps should be carefully worked amongst the roots. Sphagnum moss may also be used, but this must be worked in near the surface, for it becomes thoroughly decomposed in one season, and can then be easily removed. These plants will do in a vinery or Peach house, no better place could be accorded them. They will repay for gentle moist heat to start them, and during their season of growth.

Names of Fruits.—Notice.—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending

or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (C. Evans).—Moss' Incomparable.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (R. Y.).—1, *Plumbago rosea*; 2, *Myrsiphyllum asparagoides*; 3, *Ficus repens*. (G. F.).—*Iris fimbriata*. (A. McM.).—We cannot undertake to name such fragments, send flowers and better specimens. (T. A.).—*Cattleya Loddigesii*, the markings are probably due to excessive moisture, try a dryer situation.

COVENT GARDEN MARKET.—FEBRUARY 10TH.

MARKET still quiet, with supplies generally shorter.

FRUIT.							
	s.	d.	s.	d.		s.	d.
Apples, ½-sieve	1	0	4	0	Grapes, per lb.	1	6 to 3 0
Apples, Canada and Nova					Lemons, case	15	0 2 0
Scotia, per barrel	12	0	25	0	Oranges, per 100	4	0 9 0
Cobs, Kent, per 100 lbs. ..	0	0	40	0	St. Michael Pines, each ..	3	0 6 0
VEGETABLES.							
	s.	d.	s.	d.		s.	d.
Beans, Kidney, per lb. ..	0	4 to 0	6		Mustard and Cress, punnet	0	2 to 0 0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3 0 5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0 3 0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0 0 0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0 3 0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0 1 6
Cucumbers, dozen	2	0	3	6	Scorzonera, bundle	1	6 0 0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6 1 9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3 0 0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0 0 0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4 0 6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0 0 4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.							
	s.	d.	s.	d.		s.	d.
Arum Lilies, 12 blooms ..	6	0 to 9	0		Maidenhair Fern, dozen	4	0 to 9 0
Azalea, dozen sprays	1	0	1	6	bunches	1	6 3 0
Bouvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6 3 0
Carattias, 12 blooms	2	0	3	0	Mimosa or Acacia (Freuch)		
Christmas Roses, dozen					per bunch	1	6 2 0
blooms	1	0	1	6	Narciss (French) dozen		
Chrysanthemums, dozen					bunches	3	0 6 0
blooms	0	9	3	0	Pelargoniums, 12 bunches	9	0 15 0
Chrysanthemums, dozen					" scarlet, 12 bunches ..	6	0 9 0
bunches	4	0	12	0	Poinsettia, dozen blooms ..	4	0 9 0
Cyclamen, dozen blooms ..	0	3	0	6	Primula (double) 12 sprays	0	6 1 0
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6 3 0
Euphorbia jacquiniæflora					" Red, per doz. blooms ..	2	0 4 0
dozen sprays	3	0	6	0	" Tea, white, dozen ..	1	0 3 0
Epiphyllum, dozen blooms	0	6	0	9	" Yellow, dozen	2	0 6 0
Freesia, dozen sprays	4	0	6	0	Tuberose, 12 blooms	1	0 1 6
Gardenias, per dozen	4	0	8	0	Tulips, dozen blooms	1	0 2 0
Hyacinths, dozen spikes ..	6	0	9	0	White Lilac (French) per		
Hyacinths (Roman) dozen					bunch	5	0 6 0
sprays	0	6	1	0	Violet Parme, Freuch behs.	3	6 4 6
Lilium longiflorum 12					" Czar	1	9 2 0
blooms	6	0	9	0	" small bunches	2	6 3 0
Lilium (var.) dozen blooms	2	0	4	0	" English, dozen		
Lily of the Valley 12 sprays	1	0	1	6	bunches	1	6 2 0
Marguerites, 12 bunches ..	3	0	4	0			

PLANTS IN POTS.							
	s.	d.	s.	d.		s.	d.
Arbor Vitæ (golden) dozen	6	0 to 12	0		Ferns, in variety, dozen ..	4	0 to 18 0
Azalea, per plant	2	6	3	6	Ficus elastica, each	1	6 7 0
Chrysanthemums, large,					Foliage plants, var., each ..	2	0 10 0
dozen	12	0	24	0	Hyacinths, per dozen	6	0 0 0
Cyclamen, per dozen	13	0	18	0	Lily of the Valley, per pot	2	0 2 6
Dracæna terminalis, dozen	4	0	42	0	Marguerite Daisy, dozen ..	6	0 12 0
viridis, dozen	12	0	24	0	Myrtles, dozen	6	0 12 0
Epiphyllum, per pot	1	6	2	6	Palms, in var., each	2	6 21 0
Erica gracilis, per dozen ..	9	0	12	0	Pelargoniums, scarlet, doz.	4	0 6 0
" hyemalis, dozen	12	0	18	0	Poinsettias, per dozen	9	0 15 0
Euonymus, var., dozen	6	0	18	0	Solanum, per dozen	9	0 12 0
Evergreens, in var., dozen	6	0	24	0	Tulips, dozen pots	7	0 9 0



FULL CROPS.

ONCE more have we been told that nitrate of soda "takes so much out of the land." The trite remark prompted the writing

of this article, for we are bound to do all that is possible to dispel the ignorance which still lingers among tillers of the land, to their hindrance and harm. Now, we should much like to ask such men what is meant exactly by the remark to which we take exception. Can they give an intelligible explanation of it? If by taking much out of the land a full crop of exceptional abundance is meant, we should then ask if that is not the end and aim of all sensible manure application? The matter is important—far more so than is commonly supposed, and attention may be usefully drawn to it now, just before we enter upon the work of another seed time.

What, we ask, is the object of every farmer in applying manure to land? Is it not that the crops sown or planted may obtain sufficient nutriment from it to develop fully in every part—stem, branch, leaf, seed, and root? It is well known that no form of manure enables crops to do this so freely as nitrate of soda, and that is why it is said to “draw the land.” Yet the land does not alter in character after the crop is harvested or consumed; it is there ready to yield another crop equally abundant, if only more manure is applied at the proper time. The fact is so simple, so clear, so easy of comprehension, that one wonders how there can be any doubt or misunderstanding about it. Perhaps the best, or in point of fact the only way to make the matter clear, is to go on using chemical manures year after year, and thus show how full crops can always be had. Yet, even when this is done, we dare not feel confident that it will carry conviction to minds warped and clouded by ignorance and prejudice. It has fallen within our experience that some farmers hesitate to hire farms that have been in the landlord's hands, and have been rendered productive by the steady periodical application of chemical manure. We know several farms in hand that were so treated, which came to yield a better rent than was paid by the tenants of other farms on the same estate. A change of agents led to a cessation of the use of chemical manures, a heavy expenditure upon live stock for the manufacture of farmyard manure was followed by such a serious falling off in bulk of crops that profit was out of the question. Some of the farms were eventually let go out of cultivation, others were let at nominal rents, which barely afforded means to pay tithe rent charges. In this instance it was the owner of the land that suffered; he deserved to if he could not appreciate good management, or had not given sufficient attention to agriculture to know what was for or against his own interests.

We are not writing in the interest of a class, but in that of both owners and occupiers of land, knowing, as we well do, that one cannot thrive at the expense of the other. To landlords we say, then, Test the comparative value of manures upon your home farm, trust nothing but results; prove, as you so easily can do, the economy and efficiency of chemical manures, then invite your tenants to see for themselves what may be done by such means. There can be no doubt that the general average of farm produce is much lower than it should be. The reason is obvious. In crops it arises from bad tillage, foul wet land, inferior seed, insufficient manure. Said a Bucks farmer to us recently, “My Oats pay well, they dress easily up to an average of 52 lbs. per bushel; they are Carter's Cluster, and an excellent Oat it is. If it were worth while, an extra turn through the screen would bring the weight up to a still higher average.” Now we had heard and seen enough of our friend's practice to know that it was equally sound in seed selection and in every other detail.

In East Anglian markets a 12 stone Oat—i.e., Oats weighing 12 stones of 14 lbs. per comb of 4 bushels, or 42 lbs. per bushel, is regarded as a sample of much excellence altogether above the average, which is often nearer 9 stones, or a fraction under 32 lbs. per bushel. Yet simply by his high standard of culture the Bucks farmer has Oats 10 to 20 lbs. heavier per bushel than the ordinary Oat of commerce, consequently he has no difficulty in obtaining a price proportionately higher. The Oats he had

just got cleaned were going into the stables of a nobleman. Such a farmer undoubtedly has full and profitable crops. He deserves to have them. At the outset he was careful to hire only sound land of good staple, first taking only one farm well within his means, making that answer so well that more and more land has been acquired, till he now holds 1000 acres. Such able men suffer comparatively little loss from an adverse season, energy and ample means enabling them always to be well forward with their work, and to seize every favourable opportunity of weather to sow or harvest crops that are full, abundant, and are also almost invariably of high quality.

WORK ON THE HOME FARM.

Land ploughed early is now in splendid condition, and a good seed bed may be relied upon early in the season. Ploughing goes steadily on, but we fear the wet land so ploughed must be late in coming into condition for use. Laggards there always will be among us, but their faulty practice is not to be taken as a guide for ordinary work. To those who are well forward with tillage, we say, Be ready for an early opportunity for sowing. February has come in with a brisk drying wind, and it may be that we are to have land sufficiently dry for early sowing as we did last year. If so, much spring Wheat is likely to be sown. We do not advise extreme measures with spring corn, as no change of weather is likely to cause prices to rise very high. Every market fluctuation here is known at once at the leading centres of supply all over the world, and we may rest assured that high prices for farm produce are altogether a thing of the past. Home markets are constantly being felt or largely supplied by foreign growers. Last year eggs from Canada and Apples from Tasmania were novelties; this year they will be firmly established in our markets. Now we have Australian eggs and Australian butter; of the first a trial consignment; of the last a supply that is making its way into our provincial markets. It is nice sweet butter, slightly salted, and admirably packed, which is retailed at 1s. 4d. per lb., and is altogether preferable to most of the overworked, flavourless, continental butter.

Lambing is going on well, especially on upland farms, where the pasture is sound and dry. A run on short sweet grass, crushed oats, and chaff in the troughs, with a liberal allowance of cattle Cabbage, keeps the ewes going well, and there are no losses to record so far. We shall push on the lambs as soon as they can eat, for we have no faith in any possibility of profit upon animals that are half fed and brought slowly to maturity. With imported mutton at 3½d. per pound by the carcass the outlook is not bright. Sheep, however, if well managed always pay their way. We have nothing like them for manuring the land thoroughly and cheaply, and if only we select well, breed well, and feed well there is money in them still. Give all possible attention to shelter; let it always go together with careful feeding and general good management, then losses will be rare, and progress will be fully in proportion to the care, judgment, and skill bestowed upon the flock.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1892. January and February.		Barometer t ^{32°} , and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	31	30.145	46.7	45.2	N.	41.8	50.9	46.5	69.8	45.4	—
Monday ..	1	29.597	47.0	44.6	S.W.	42.1	48.2	45.0	51.1	40.8	0.066
Tuesday ..	2	29.343	36.6	33.2	W.	40.9	43.1	35.6	71.0	29.7	0.102
Wednesday	3	29.264	39.1	37.1	W.	39.2	44.8	35.0	70.3	30.7	—
Thursday ..	4	29.758	32.7	31.6	S.W.	38.2	45.1	29.4	66.1	23.3	0.018
Friday ..	5	29.614	40.0	38.4	W.	38.5	48.8	32.2	77.6	23.8	—
Saturday ..	6	29.876	41.8	39.4	W.	38.7	48.9	38.2	56.8	32.9	0.020
		29.657	40.6	38.5		39.9	47.1	37.4	66.1	33.2	0.206

REMARKS

31st.—Rain early, and dull till about 10.30 a.m., then bright sunshine till 2 p.m., and occasionally after.

1st.—Dull, damp morning; heavy rain at 1 p.m., bright sunshine after 3 p.m.

2nd.—Brilliant morning, clouded over at 0.30 p.m. and frequent showers after 1.30 p.m., snow shower (large flakes) from 3.35 to 3.40 p.m., bright again after.

3rd.—Damp early; bright sunshine throughout the day, except for an hour or two at noon.

4th.—Sunny morning; cloudy afternoon, drizzle from 4 p.m., and slight showers in evening.

5th.—Bright sunshine almost throughout, lunar halo and corona at 11 p.m.

6th.—Cloudy morning; slight showers in afternoon and evening.

A mild week, almost spring-like.—G. J. SYMONS.



JUDGING by the programmes already announced or which are before the public, it appears that the present year will be one of exceptional interest in the horticultural world, and the preparations for the following year are also of an elaborate character. There seems to have been a sudden awakening to the fact that horticulture has been publicly neglected, and in several distinct ways efforts are being made to compensate for this neglect. So marked is this that perhaps fears may be awakened lest too much be attempted, and the expectations of the various promoters should not be fully realised. It is, however, a material cause of satisfaction that the projects are being undertaken with considerable spirit, and this alone goes a long way towards supplying a reliable guarantee that a large share of success may be anticipated. It must, however, be urged upon all interested that any delay now in forwarding the schemes will have a tendency to nullify previous efforts, and the sooner the complete programmes are issued the better.

First to be noted is the proposed International Fruit Show to be held in London in the autumn of the present year, and concerning which much interest has already been excited. It may be remembered that this was started at a meeting held in the Cannon Street Hotel last October under the presidency of Sir James Whitehead, Bart., and a Provisional Committee was then appointed to prepare a scheme for carrying out the idea. This Committee have held several meetings, and have made sufficient advance in their deliberations to select a site for the Exhibition. To-day (Thursday) a deputation will present a petition to the Court of Common Council at the Guildhall for the use of a portion of the unoccupied land on the Thames Embankment near the Temple Gardens, and it is confidently anticipated that no difficulty will be experienced in obtaining the requisite permission. Beyond this substantial pecuniary assistance has been promised, either in the shape of subscriptions or guarantees, and everything bears a very hopeful aspect with regard to what will undoubtedly prove a highly important gathering.

Another event has been announced for the present year—namely, an International Horticultural Exhibition at Earl's Court, full particulars of which are advertised in the present issue of this Journal. A preliminary meeting was held in the Hotel Windsor, Victoria Street, last week at the invitation of Mr. H. E. Milner, who explained to those present what was intended by the promoters—Baron Reuter, Colonel North, and the officials of the District Railway Company. The Exhibition is to take the form of a permanent display of horticultural appliances of a most varied character, with special shows of plants at intervals during the season. After some discussion it was resolved, on the motion of Mr. William Paul, seconded by Mr. A. McKellar of Sandringham, "That this meeting of representatives of leading nurserymen and gardeners of the United Kingdom desires to express their appreciation of the objects of the International Horticultural Exhibition, and promises to do what they can to secure its success, and also to extend a cordial greeting to their Continental friends." A Committee is being formed, but drafts of the regulations and the schedule have already been issued, from which it appears that the Exhibition is to be opened on May 7th, and Shows are to be held on that date; May 27th and 28th; June 6th, 7th, and 8th; July 5th and 6th; August 1st, 2nd, and 3rd; September 7th, 8th,

and 9th; and two Shows in October. At these meetings medals, certificates, and money prizes are to be offered, and the two former will also be awarded in the various groups of permanent exhibits.

Elsewhere in the present issue a notice will be found of the International Exhibition of Chrysanthemums, to be held in the United States towards the end of this year, and as it is proposed to devote over £2000 to this as a prelude to the horticultural attractions of the World's Fair in Chicago next year, it may be expected to assume proportions of some magnitude.

Besides, the gigantic Chicago Gathering for 1893 there will also be the Quinquennial Exhibition in Ghent, so that horticulturists are likely to have plenty to occupy their time and attention for the next two years at least.

MARKET GARDENING IN THE FAR WEST.

I AM often applied to by inquirers in England to know what they could do if they came to Colorado. A man with his health, sufficient capital, and, above all, with his head "screwed on right," as the saying is, will find many more openings in this young rising State than he can in an old settled and crowded country like England. For instance, let me give a few well authenticated facts and figures as to what is being done in market gardening and small farming near Denver.

The first house (a log cabin) was built in Denver in 1859, then 750 miles west of the nearest railroad. To-day Denver is a magnificently built city of over 150,000 inhabitants, with nearly 150 miles of cable and electric tramway lines, and the geographical, railroad, commercial and financial centre of a country of wonderful natural resources, fast filling up with population, as large as the German Empire. Another twenty years and there is little doubt Denver will have a population of nearly 500,000, as it is fast following in the footsteps of Chicago.

There is a very large local consumption of vegetables, fruits, &c., both fresh and canned, some of which come from distant points, which ought and might as well be grown here. Now, I do not propose to quote prices which are obtained from the consumer when vegetables or fruit are early in season or scarce, but will give the prices actually paid by wholesalers to the local gardeners during 1891. Let us take Tomatoes for a start, which here are a field crop, yielding heavily and being in great local demand. In Denver there are three canning factories, and the figures given are from their books. It is usual with these firms to contract with the gardeners at the beginning of the season for all the surplus Tomatoes, at a certain price per 100 lbs.—that is, the gardener takes his Tomatoes to the public market or to retail stores or retails them, getting the best price he can; but if he does not get a sufficiently good price, or the market that day is overstocked, or he is limited for time, he can any day in the season take his waggon-load right down to the canning factory, the proprietors of which will take all he has at the price agreed on at the beginning of the season, and pay him for them right there. This is a great convenience. The contract price for 1891 was 60 cent., or 2s. 6d., per 100 lbs. On this basis the three Denver canning factories bought from Colorado gardeners and canned during the season of 1891 a little over 1000 tons of Tomatoes, and would have canned twice that quantity, but could not get them in consequence of the large local consumption of fresh Tomatoes at higher prices. An average crop is 10 tons (2000 lbs. to the ton) to the acre, which at the above wholesale price would be £25 per acre; but, as a matter of fact, the great bulk of the crop is sold at much higher prices to retailers and others. I have not ascertained what the average expense per acre amounts to, as most of the growers do their own work largely.

The same firms during 1891 canned 18 tons of string Beans, mostly Dwarf Kidney Beans, paying for them £8 per ton; 60 tons of Pumpkins at 2s. per ton; and 20 tons of Navy or Haricot

Beans. For pickles they purchased 600 tons of Cucumbers (grown as a field crop) at 5s. per 100 lbs.; 20 tons of Cauliflower at 1½d. per lb.; while 40 tons of Cabbage, averaging 1s. 8d. per 100 lbs., were made into sauer kraut. One firm paid £300 to one man for Silver-skin Onions at 1½d. per lb., grown on 3 acres of ground—that is, £100 per acre for his crop. Mr. Morey tells me the local market for garden produce is immense, and that if there were three times the present number of gardeners around Denver they could find a good and profitable market for their produce, the reason of which is that Denver supplies a number of flourishing mining towns away up in the mountains from 7000 to 10,000 feet above sea level, where it is impossible to raise either fruit or vegetables. It is estimated that at least £40,000 per annum goes out of Denver and Colorado to the East for canned vegetables and pickles of the same character that Denver factories put up, and which might as well be grown and canned here.

There are quite a number of Englishmen engaged in fruit growing and market gardening around Denver, and the other afternoon I visited one of them, a Mr. James S. Ibbison of Wheatridge, a few miles out of Denver, who used to be in the fruit business in Leeds market. He told me of a neighbour of his who last year grew 3½ acres of Yellow Danvers Globe Onions, using 14 lbs. of seed to the acre. He raised by actual weight 20 tons of Onions to the acre, which he sold at from 6s. to 8s. per 100 lbs. He further informed me that Celery varies in price from 1s. to 2s. per dozen, and is dressed down for the market more than in England. £100 per acre can be had from Celery. The Celery here is finer and better than in England. He has known a dozen of Celery, as dressed for the table, to weigh 22 lbs., which if simply handled in the English way would have weighed 50 lbs. Blackberries are a great crop, and Mr. Ibbison has 3½ acres of them. They sell at 12s. per crate, twenty-four boxes in a crate, and about a quart in a box. They are of very large size and fine flavour. As an instance of what can be done, Mr. Ibbison has nineteen Lombard Plum trees from which in the fourth year from planting he got 1500 lbs. of fruit, which he sold at an average of 4d. per lb. Mr. C. T. Wilmore, a neighbour of Mr. Ibbison on Wheatridge, reckons his average net returns per acre on fruit retailed direct to the consumer are: Blackberries, £60; Strawberries, £80; Currants, £40; and Raspberries, £60.

Much more similar information might be given; but there is one other matter which calls for mention as showing what could be done by the right sort of people on a small farm within easy reach of Denver. During 1891, according to official figures, there were received and unloaded in Denver, largely from Kansas and Nebraska, no fewer than fifty-five carloads of eggs, representing 2,000,000 dozen. There were also brought to Denver, chiefly from those two States 1,900,000 lbs. of dressed poultry, and 3,500,000 lbs. of butter. It would appear from such a showing that there is a good opening for the right sort of people on small farms here. I came here from Manchester in September, 1883, and I have never yet incurred the very serious responsibility of advising anyone to leave England and come here. They do that, if at all, on their own responsibility; but it does seem to me that in the case of a young man, or a young couple, with ambition and a desire to do well, having a practical knowledge of vegetable and fruit growing and some money to start with, that Denver presents very good opportunities, and that such a young man would do well to come here and work for some local market gardener for one season before purchasing or renting a place of his own.—THOMAS TONGE.

PLANTING SHRUBBERIES AS SCREENS.

I CONCLUDED a former paper with narrow shrubberies for screens. I will now add something on the planting of shrubberies for screens in cases where there is plenty of ground at disposal. Here, again, the ultimate end in view for such a shrubbery will be kept in sight. If only a comparatively low screen is wanted a clump of Portugal Laurels, of Rhododendrons, or of Hollies may be employed; but if high buildings are to be shut out I prefer English Yews, and among them also some deciduous trees, such as the Turkey Oak, which, though of comparatively slight value as a timber tree, is a rapid grower and does no harm to undergrowth. Lombardy Poplars in a close line next the building to be shut out might also be used. The Yews must be well back, so that at no future time they come near the building, and if set out at 9 feet apart they will in the course of a few years, supposing strong plants are placed out, become rather close. Between the Yews Lawson's Cypress or Cupressus nutkaensis will be a great help in quickly filling up. In the foreground, still allowing plenty of space, green-leaved Hollies would be admissible. The best of these, perhaps, is the broad glossy leaved form called Hodginsi. A few of the Silver Queen Holly are very bright among the others, and in the

immediate foreground room might be found for Aucubas, Daphne laureola, Golden Queen Hollies, Laurustinus, and dotted among these a few of the dwarfer growing Junipers and Retinosporas. A beautiful effect may be produced by the admission of a line of flowering plants not too far back, but say about the middle of the space between the outer and second row of shrubs, and nothing finer for this purpose can be found than the common Laburnum trimmed up to form a standard with about 9 feet of stem. This plant is never unwieldy in size. The Snowy Mespilus, a small growing flowering tree, which blossoms early, is also useful.

This shrubbery I should certainly lay down in grass, but plant Daffodils and Snowdrops in open spaces, more especially near the front. Primroses do remarkably well on grass, and where sheltered we are almost sure, even during the dullest days of midwinter, to have a few flowers.

For shelter the shrubs must be selected from those which best stand the wind. One of the worst in this respect is the Portugal Laurel. The common Laurel stands wind fairly well, so does the English Yew, but none so well as the Holly. I would, therefore, make the Holly the chief plant in a shrubbery for this purpose; but as it is not of rapid growth, a few Thuja Lobbi, which is a wind-proof tree, should be planted beside it.

Rhododendrons also stand wind moderately well, but in a position like that we have in view they do not grow to sufficient height to be of much use. For this, or indeed for any purpose that Hollies may be selected, the ground cannot be too well prepared and enriched. The Holly produces a vast number of fibrous roots, and in well prepared ground these roots revel, furnishing strong stems and beautiful glossy foliage, as different as can be from that produced on plants growing in impoverished or unprepared ground.

It may be noted here that it is much better to plant more thickly at first, and to thin out supernumeraries, as they encroach on permanent occupants, than it is to set out just the number required to remain. When thickly planted young shrubs grow much more rapidly, owing to the shelter afforded. For years I have been lifting and setting out in other positions great numbers of shrubs which were thus planted. They are common, but useful, sorts of Laurels and Yews mostly.—B.

HARDY FLOWER NOTES.

FEBRUARY dawned upon us with days of storm befitting its epithet of "fill-dyke," snow and rain alike striving for the mastery over and the destruction of the early flowers. Despite our exposed position, the tiny blossoms of the early season withstood the gales and drenching weather with wonderful success; and afterwards they rejoiced in mild balmy days such as we so often have in this short month. In truth it must have been such days of which Clare speaks thus:—

"The sunbeams on the hedges lie,
The south wind murmurs summer soft;
The maids hang out white clothes to dry,
Around the Elder-skirted croft.
A calm of pleasure listens round,
And almost whispers winter by;
While fancy dreams of summer sound,
And quiet rapture fills the eye."

And now the "Fair Maids of February" with modest mien adorn the garden, looking downward as if abashed by the rough wooing of the wintry winds. So bashful do they look that the poet might be excused who would imagine that a blush with rosy hue might enhance their beauty as they bend towards the ground. One feels disposed to resent on their behalf the fancy of the author of a legend I read the other day, and which accounted for the drooping head of the Snowdrop as the result of the flowers incurring the displeasure of the Queen of the Fairies through having, as a Fairy tribe, refused charity to a beggar-maid who sought relief at their hands and received but cold treatment. So enraged was Queen Mab that, according to the legends, the Snowdrops were condemned for ever to bow their heads. If the Snowdrop has thus seemed to some the embodiment of inhumanity, to one at least of our poets it has spoken in sad tones. Mrs. Browning says:—

"The poor sad Snowdrop, growing between drifts,
Mysterious medium 'twixt the plant and frost;
So faint with winter while so quick with spring,
And doubtful if to thaw itself away
With that snow near it."

But to me the Snowdrops speak with other voices. They are tiny lamps lighting the way as we pass through the short and murky days onward to the joyous time of spring, when Nature is, to use

the metaphor of Burns, arrayed in her green mantle; as Mrs. Norton called them "Pale stars that gladden Nature's dreary night." It seems as if one could never tire of thinking and writing of the poetry and prose which the beauty of the Snowdrop has impelled its admirers to contribute in her praise; but an attack of illness has delayed these notes, and flowers are appearing rapidly, and in the endeavour to make up the leeway the flower which was dedicated to the Virgin Mary, and which in olden times used to replace her image on the altar on the Day of Purification must unwillingly be left in the meantime, at least in this aspect, but a word or two from another point of view can hardly be left unsaid. In my last notes I said that it appeared as if the Snowdrop would be later than in former years, and in this I find that my eagerness to view the first flowers has led me astray, as referring to my book with notes of the dates of flowering of various plants, I find that *Galanthus nivalis* did not flower with me in 1891 until February 4th, while this season it flowered on January 29th. *G. Elwesi* was nine days earlier. I have for the first time flowered what has been dubbed the "King of Snowdrops," *G. Fosteri*. I am aware that another season will probably add something to the size of the flowers, and that the species is a variable one, but I fancy there will be a common agreement among disinterested and unprejudiced growers that the regal title has been bestowed with little justification. True, the broad well-coloured foliage is very beautiful, but the flower is small and the much spoken of "sweet scent" is somewhat disappointing, although present to a certain degree. The foliage is, however, so distinct that it will, I have no doubt, be retained by what may be called the "esoteric few" who are not content with the beautiful *nivalis*, but desire to retain the various forms and varieties and can also admire, as I do, the fine flowers of *G. Elwesi* and the broad short bloom of *G. Imperati*. I had intended saying, in connection with the Snowdrops, a few words on the deep or shallow planting of bulbs, but so much waits for notice that this too must be left meanwhile.

Now, too, as the lines from Hone's "Everyday Book" express it:—

"Beside the garden path the Crocus now
Puts forth his head to woo the genial breeze."

And whatever may be said of its success in wooing the winds, the flower which is said to have sprung from the blood of "a certain young gentleman called Crocus," as "Holinshead's Chronicles" tell us, has by its beauty won the affections of its human observers. In my garden *Crocus hyemalis* still displays its flowers, and since the 30th of January *C. Imperati* has kept it company with its gayer but equally charming flowers of bright purple inside and delicate fawn with dark streaks on the outside. The pretty variety of *C. Imperati* named *longiflorus*, is also in flower; and some of the flowers of *C. biflorus*, the Scotch Crocus, have just begun to open. At this time of the year one has but few visitors to the garden, and fewer still who are so intimately acquainted with the flowers as to appreciate their many little charms which only reveal themselves to the connoisseur (I do not care for the word as applied to the informed lover of flowers, but use it for want of a better); but one of the few visitors admired these Crocuses extremely, and it was little wonder, as besides the opened flowers, there were many unopened, with their beautiful cone-like closed buds, coloured and streaked in a charming way. Then, since the 30th of January, a beautiful Crocus which I have without a name, but which is of the brightest and deepest yellow, has expanded its shining cups to the sun when that luminary could pierce the clouds. It is planted on the rockery, and has for a groundwork or carpet to the little compartment a plant of the crimson Thyme. Now the golden flower, when closed like some miniature gilded minaret, or open like a cup of gold, from which Cleopatra herself might not have disdained to drink, stands enhanced by the deep green carpet, and by-and-by when the Crocus has doffed

" . . . her golden robe
and emerald coloured cloak,"

the deep green carpet will cover itself with crimson embroidery—a fitting coverlet for the couch of the shining flower which sleeps the summer through.

What, too, are these flowers of brilliant hue which seem to imitate the rainbow by their brilliancy? These are the rainbow flowers themselves—the Irises, and what pen can venture to describe the beauty of the species which now dare to face the uncertain weather of February? To my regret my small stock of the beautiful *I. Bakeriana* has split up into two small bulbs to flower this year, and the first to flower has been the new *I. histrioides*, (fig. 18) of which I know nothing save that it is said to be a hybrid between *I. histrio* and *I. reticulata*. I am more than doubtful of the truth of this, but in the absence of precise information would prefer to await further observation and inquiry among my friends

who may be growing this beautiful little Iris. It, or at least my specimen, is very dwarf in habit, much more so than either *histrio* or *reticulata*, and has a broad lip, and is of a beautiful arrangement of colour—white, pale and deep blue. My plant, like several other flowers, opened fully on 30th January, and has much pleased me. Equally beautiful, gayer, and as attractive, if not so rare, is the elegant Iris *Histrio*, the Actor Iris, a native of Mount Lebanon, whence it was introduced in 1873. It grows about 9 inches in height, and like so many of the genus shows so many shades of colour as to be impossible to describe correctly. The brief description, "purple and yellow," of the "Cottage Gardeners' Dictionary" fails to do justice to the beautiful shades which decorate the flower. Another account, "blue, streaked yellow, and blotched deep purple," comes perhaps nearer, but no verbal



FIG. 18.—IRIS HISTRIOIDES.

description can convey to the mind the impression conveyed by seeing the flower itself. The most of these dwarf Irises grow easily in light, sandy soil, although a proportion of peat in the soil is the recognised prescription for the culture of these beautiful plants. The next of the genus to flower will be *I. Danfordiae* and *I. reticulata*.

But the sheets of paper before me remind me that the other flowers must have the briefest notice, and the little Cyclamen Coum which opened in its sheltered half-shaded nook on the 8th of February, and now lightens up the corner in which it grows in leaf mould and light sand, will, like other things, only have its beautiful rosy purple flowers mentioned. Then the first flower of that exquisite miniature Daffodil, *Narcissus minimus*, opened on 8th of February, only to fall a prey to a greedy slug, which escaped its rightful fate until this morning, when its inroads were stopped for ever. *Anemone blanda alba* opened on February 11th, and is very pretty indeed. It has been established here for about two years, and seems quite at home in my light soil. The new Taurian form of *Scilla siberica* is also in flower, and bids fair, when established, to be a valuable acquisition. Thus far few of the Saxifrages have come into flower, some of the early ones having been delayed by removal. *S. Burseriana major* and *S. Boydi alba* have, however,

just opened, and some others are in bud. Thus, though boisterous March may have chill winds in store for us, we can, in the meanwhile, rejoice at the feast of pleasure set before us at the present time; and as we walk around the garden and hear the humming of the wandering bee as it searches the Snowdrop or the Crocus, rejoicing as it goes, we, too, may well, with uplifted hearts, feel cheered by the beauty spread around.—S. ARNOTT.

[The illustration of the new *Iris histrioides* was prepared from a plant shown by Messrs. John Laing & Sons, of Forest Hill, at a recent meeting of the Royal Horticultural Society, when an award of merit was granted for it by the Floral Committee. It is a beautiful form of the bulbous section, with large full flowers, the standards rich blue and deeply cleft, falls broad and well rounded, of a deep ultramarine blue streaked and mottled on a white ground. It is one of the finest of the *reticulata* group, very early, hardy, and sweetly perfumed. The plant is evidently well adapted for culture in pots, and will be useful for cool houses.]

COUVE TRONCHUDA AND ROSETTE COLEWORT.

THE above two vegetables are not, I think, cultivated as extensively as their merits deserve. Couve Tronchuda, or Portugal Cabbage, is quite a distinct variety of the Brassica family, with a somewhat spreading habit; the leaves, under good cultivation, having thick, juicy midribs, which, when stewed like Seakale or Celery, form a most delicious dish. The leaves selected for that purpose should not be the oldest or the very young ones. They should be broken from the stem, and the green part stripped off. The hearts may be afterwards cut and treated like Cabbage. To obtain thick succulent stems the seed should be sown early, about the same time as the first sowing of Brussels Sprouts will do. They should be pricked out, and finally planted in rich ground at 18 inches apart. It has a hardy constitution, and, like most winter greens, is much improved in flavour after being frosted.

Rosette Colewort is another useful winter vegetable which should be cultivated by all who have a large demand with limited space at command, as the crop occupies the ground but a short time, and is a most acceptable dish, quite equal to Brussels Sprouts. The seed need not be sown until June, rather thinly, which obviates the necessity of transplanting. I generally make a practice of planting the quarters occupied by the main crop of Peas with these, making successional plantings as the rows are cleared off. The surface of the ground may be loosened with the fork, when they may be planted at 9 inches apart and 12 inches in the rows. With a favourable autumn they form compact little hearts. The best way is to draw them by the roots as wanted, and the ground is thus clear for digging again.—W. H. STEPHENS.

THE FLOWER TRADE IN PARIS.

[Notes of a Conference held at the Hall of the Association Française pour l'Avancement des Sciences, by MR. H. L. DE VILMORIN.]

(Continued from page 535.)

OPEN GROUND CULTURE.

THE most important "purveyors" at the Halles and the Parisian flower markets are those of whom we have had least to say; they are the small horticulturists and market gardeners of the Seine and surrounding Departments, who cultivate in the open ground or under moveable shelters the flowers that afford them the best chance of profit. One bestows his care on annuals, another on perennials; some take to the culture of Carnations and Asters, others give preference to Dahlias, Begonias, and Chrysanthemums. There is scarcely a market gardener who does not raise some flowers between his vegetables, and a visit to the market gardens of Grenelle, Clichy, Châtillon, or Mouligneaux always brings to notice a few frames devoted to flowers. The appliances of these growers are very simple; the frame and straw mat constitute the principal. Being often sons of gardeners certain special knowledge is passed from father to son, with shrewd observations based on custom and tradition. It is an honest population—eager for gain, but not curious to know new processes, and with a strong attachment to old customs and principles. During winter their life is very rough. Under frames they keep the common winter flowers, Lenten Roses, perpetual Violas, yellow Wallflowers, and Heliotrope; but their culture produces its full effect only with the first strengthening rays of the sun. We owe to them the bulbous plants, which charm our eyes by their colours towards the end of March or the beginning of April, when the small pots are ranged on the asphalt of our flower markets, wrapped in a sheet of white paper. They do not supply the trade, but bring their flowers or plants for sale direct to the flower markets in the different quarters of the City.

The Parme and perpetual Violets are grown in the open fields at Fontenay-aux-Roses, Sceaux, Chatenay, and Verrières; but that is now rather uncertain, and has a formidable rival in the south of France, where the flowers are produced with more certainty. As a general rule the growers of bulbs and of plants for sale derive a profit from the flowers produced. The gardeners at Montreuil sell in that way heaps of *Narcissus poeticus* and of Parisian Hyacinths. Some of our nurserymen dispose of an abundance of *Pæony* and Rose flowers; and Fontainebleau and Montereau, the country of the beautiful *Gladiolus gandavensis*, send out during summer thousands of spikes of that flower.

CULTURE UNDER GLASS.

It is easier to form an idea of the importance of the cultivation which furnishes the Parisian trade with plants and flowers grown under glass. We may estimate that 400 to 500 horticulturists, using 2500 or 3000 glass houses or groups of 20 frames, contribute the following:—

Lilac	...	...	20 raisers, using	300 glass houses or sashes
Roses	...	...	15 "	400 "
Bulbous Plants	...	...	12 "	60 "
Ericas and Ferns	...	...	15 "	500 "
Foliage Plants	...	...	50 "	250 "
Plants in Bloom	...	...	300 "	1200 "
Camellias	...	...	10 "	25 "
Azaleas	...	...	20 "	50 "
Gardenias	...	...	5 "	15 "
Orange Blooms	...	...	1 "	7 "
Orchids	...	...	10 "	15 "

It is easy to understand that each plant having its own characteristics, specialties are imperative for culture on a large scale. When variety is necessary it is always at the expense of the quality of the produce; each flower has, therefore, its centre of production, which is the secret of abundance and of cheapness by the concentration of all forces towards a common result. That specialisation enables one to establish the following floral map.

Inside the fortifications at Montrouge, Vanves Glacière, Avenue de Châtillon, and Grenelle Roses are forced, for which the stocks are procured from the large nurserymen residing at Brie-Comte-Robert, Bourg-la-Reine, and Ivry. The city has also, in the Picpus quarter, as a specialty the Parisian Stock, known in the vernacular as La quarteronne. Versailles grows the Azaleas like Vincennes and Montreuil-sous-Bois. The forced Lilac comes from Vitry-sur-Seine, Montrouge, and Montreuil, which latter place is a centre of extreme activity, providing Paris with Camellias, Gardenias, *Narcissus*, Hyacinths, and Cyclamens. As soon as the Peach yields fully the whole population abandon the flowers and direct their attention to it.

Bourg-la-Reine, Fontenay-sous-Bois, Clamart, and Verrières, as mentioned, are devoted to the Parme and perpetual Violets, also Fontenay-aux-Roses. Neuilly is noted for forcing the Lily of the Valley, the same as Bagneux, where, at a time, the Parisians were glad to pick Strawberries. Fontenay-sous-Bois furnishes us still Primulas, Cinerarias, and Stocks.

The Hyacinths, Tulips, *Narcissus*, and Tuberoses which inundate our streets and markets come from Ivry and Montrouge. The Ericas and Ferns are brought from Vincennes; the Heliotrope and Cyclamens, which have been so much improved in the last five years, are grown at Clamart.

Le Vésinet, devoted formerly to the Turnip, has changed that vegetable for the aristocratic Orchids like Versailles; these flowers are also grown in the City at the Avenue de Châtillon. Pierrefitte has endless fields of Carnations, and in Bourg-la-Reine that flower is forced to supply us during the whole winter. In the valley of Chevreuse all kinds of open-ground flowers are grown, both annuals and perennials. Unique in its way, within the walls, at Charonne, a succession of gardeners, heirs to a venerable conservatory, furnish the fresh Orange flowers. We will next see how the flowers are forced, beginning with the Lilac.—EUG. SCHAETTEL.

(To be continued.)

ERANTHEMUM PULCHELLUM.

BLUE flowers are scarce amongst stove plants, hence are always acceptable, more especially those which flower during the winter months, and one of the most useful is this old, very free-flowering, easily grown plant. I have plants in 4-inch pots not more than from 4 to 6 inches in height, nearly covered with flowers, and yet the plants have the healthiest foliage, and are useful alike for cutting from and for decorative purposes.

I usually cut the old plants, the shoots of the previous year, to within one or two joints of their origin, keeping the plants rather dry for a fortnight after flowering. The plants start away freely

and are potted when the young shoots are 2 or 3 inches in length. The roots are considerably reduced, and the plants are returned to the same size of pot, and are given a larger size when the plants have filled the pots with roots. A light airy position is afforded; and if this cannot be given in a house the plants do equally well in a cold pit, admitting air moderately so as to keep up a good temperature; and it is only right to say the plants do better than those grown at a distance from the glass in a warm house, the growth being stouter, shorter-jointed, and the flowering is proportionately finer. From the middle of June to the middle of September they are as well in a cold pit as in a stove.

If bushy plants are wanted the growths may be stopped to two joints; or the shoots may be regulated by tying them to stakes as they advance. The unstopped plants flower earlier than the stopped plants. In April, or when the plants are cut down, cuttings may be taken of shoots with two joints and the growing point, and these inserted in sandy soil up to the second pair of leaves will root quickly in a gentle bottom heat. They should be potted singly when rooted, and kept in heat until established, and may be removed to a cold frame in June or July, shifting at that time into 5-inch or 6-inch pots. They will grow compact, and flower well in early winter in a cool stove or warm greenhouse, being removed thither by the middle of September.

Cuttings taken in June and inserted round the sides of a pot in sandy soil and placed in a hotbed will speedily be well rooted, and may then be placed singly into 4-inch pots, and placed in a cold frame kept close and shaded until the potting is recovered from, and then have moderate ventilation, and be kept duly watered, the object being to keep them dwarf by close proximity to the glass and at a temperature only promotive of slow growth. By the middle of September remove them to a light airy position in a cool stove or warm greenhouse, and in January or February will be a reward of massive heads of blue flowers.

Turfy loam with a third of leaf soil, or preferably a fourth of old cowdung, will grow them well. Weak liquid manure given at every alternate watering after the pots are filled with roots will be found highly beneficial.—G.

FLORICULTURE AT CHICAGO.

AN INTERNATIONAL CHRYSANTHEMUM SHOW.

THE Bureau of Floriculture hopes to make such arrangements as will give to Chrysanthemums, Cyclamen, Chinese and other winter flowering Primulas, Cinerarias, Calceolarias, Amaryllis, Dutch bulbs, Narcissus, and other winter and spring flowering plants, a magnificent representation during their season of beauty, from November 1st, 1892, to April 1st, 1893. The proposed plan is to have displays of the plants and bulbs mentioned above in such quantities as to form a great attraction during their best season of flowering.

In the case of Cyclamen, Cinerarias, Primulas, Calceolarias, and Mignonette, all the seed from different firms contributing will be sown on the same day; the same treatment will be given to all; the same soil will be used; and at the final potting an equal number of plants from each contributor will be selected and grown together. When in flower it is expected that awards will be made in the order of merit, and all contributors will have the privilege of attaching their business cards and addresses, subject to the rules of the department governing the same. A record of all contributions will be kept and credited to the party supplying the seeds, &c.; all will be treated in the most confidential manner, and such methods will be pursued as will insure perfect justice to all.

All seed must be supplied free of cost to the department; thoroughly capable men will have charge of the growing of the various plants, so that the highest state of cultivation may be developed, and the growing and cultivation of the plants will be carried on without expense to the contributor. Seeds in sufficient number should be sent to make it certain that not less than 100 plants of each will be in good condition at the time of final potting.

Cyclamen seed must be sent immediately upon receipt of this communication, as it is now late in the season; the sowing of Cyclamen will be made not later than February 4th, 1892. They may be represented in ten kinds. Chinese Primulas may be shown in twelve kinds, and must be sown not later than March 1st; Cinerarias and Calceolarias, in mixture, 200 plants, to be sown by March 1st; Mignonette will also be sown by March 1st.

A FACT that has been troubling Mr. Thorpe of the Floricultural Department of the World's Fair for some time is that the Fair will close too early in 1893 to permit the Chrysanthemum to show itself in all its variety, and with the present popularity of this flower all will admit that the Department of Floriculture would be

far from complete without such a display. But what we will not have time for the fall of 1893 we will have time for the fall of 1892 thought Mr. Thorpe. So he consulted the Director General, who, when the state of affairs was explained, thought that suitable arrangements could be made. The horticultural building will be completed by that time, and, in fact, many plants and exhibits installed, but there will be acres of space to use for such an exhibition as contemplated.

In order to get an expression of opinion of the plan from as many in the trade as possible, and to have formulated some general plan to present to the Exposition managers, Mr. Thorpe called together as many as he could reach on short notice, there being present in the city at the time Mr. M. A. Hunt, of Terre Haute, Ind., Treasurer of the S.A.F., and Messrs. W. G. Bertermann and C. J. Truemper, of Indianapolis. In addition to Mr. Thorpe and the gentlemen named there were present at the meeting Messrs. J. T. Anthony, J. A. Pettigrew, J. C. Vaughan, A. McAdams, George Gardner, F. F. Benthey, F. Kennicott, M. F. Gallagher, P. J. Hauswirth, Edgar Sanders, H. H. Hindshaw, W. C. Egan, and G. L. Grant.

After Mr. Thorpe had stated the objects of the meeting Mr. Hunt was elected Chairman and Mr. Grant Secretary, and a general discussion of the project ensued, which was participated in by most of those present. A Committee was finally appointed to formulate a plan and submit same to the full meeting for action. The Committee submitted the following, which after slight discussion, was adopted by a unanimous vote:—"Whereas, the World's Columbian Exposition closes October 30th, 1893, too early for the annual Chrysanthemum shows of that year; and whereas, these annual shows have become the greatest and most popular medium of expression of public interest in horticulture. Therefore, we recommend that the Department of Horticulture arrange for an International Chrysanthemum Show in the Horticultural Building, to be held under the auspices of the American Chrysanthemum Society, opening November 3rd, 1892, and continuing fifteen days. Suitable medals and premiums should be provided, which in the judgment of your Committee could be fairly done at an expense not to exceed 12,000 dols."

It is believed that the attractions of an advance view of the World's Fair buildings in addition to such a superb exhibition as this will certainly be, will draw immense crowds, and that the Exhibition will be very profitable to the Exposition Company. The Exhibition will be thoroughly international in character, and that foreign exhibitors may be properly represented the Department will undertake to grow into exhibition condition plants sent from over the water early in the spring. In this way all the large Chrysanthemum growers of the world can be represented. It is expected that the Exhibition will bring together a display of Chrysanthemums in such variety and quantity as the world has never seen.

Thoroughly competent committees will pass upon all seedlings displayed, no matter upon which day received, and it is thought that during the fifteen days of the Exhibition opportunity will be given for nearly all the seedlings to be shown at their best. Medals obtained in such a contest will mean a great deal, and will at once stamp the winners as possessed of great merit.

Certainly no man is more competent than Mr. Thorpe to direct such an Exhibition, and none is better able to make it thoroughly international in character. May the minor details all be satisfactorily arranged, and preparations be at once begun for an Exhibition which if carried out will be a revelation to the world of the wonderful variety in colour and form of the Queen of Autumn.—(*American Florist*).

[It will be seen the amount proposed is about £2400, certainly by far the largest sum ever devoted to an exhibition of Chrysanthemums.]

PLANTING WILLOWS.

A FEW years ago I planted a piece of land with Willows (Osier). I planted them about 18 inches apart in rows 18 inches asunder. I have in all about 15,000 plants. Out of so many plants a few stocks die every year through some cause. These I replace with cuttings a foot long, 6 inches of which I insert in the ground the same as I did when the field was first planted. These cuttings, however, do not, as a rule, do very well. The old stocks, having good roothold, overgrow or smother the cuttings. I have tried the experiment of inserting whole rods in the place of cuttings, say about 5 or 6 feet long. These do well the first year. At cutting time I have them cut along with the rest of the stocks, leaving about 6 inches out of the ground. I find, however, that in the spring the plants that I put in as whole rods do not break out into buds. I should say that there will be fully ninety out of every hundred, or even more, that never bud at all, but die away.

This seems strange, for if we take a common Thorn and cut it down to the bottom, it will at growing time break out into buds, and in most cases very freely. I have had to work hard for the piece of land which I have, and I shall be glad if any of your correspondents will kindly help me with advice in this matter. Planting time being near at hand, any views about what I have stated will be welcome.—B. B.

[We submitted this letter to an experienced cultivator of Osiers, who has furnished the following reply, but any further information on the subject will be willingly published.

"The usual cause of 'sets' not growing is taking them from the top end of the shoots instead of the lower part, the sets being about 15 inches long, and inserted half their length in the soil. The sets taken from the top of the shoots rarely make good plants, collapsing in a year or so, and occasion much need of 'mending,' which is done by cutting off the largest and best rods in a sloping direction at the base, and they are inserted in the ground to the depth of 9 inches by the side of the dead stools, the rods being inserted whole, and not cut in the form of a set. This is to prevent their being smothered by the older stools, and after two years they are cut back to the height of the other stools. The cause, therefore, of sets failing is unripe wood, and the cause of stools dying is severe weather in spring—March and April—the chief casualties occurring when the winters are mild and succeeded by severe weather, two-thirds of the crop not uncommonly dying, and stout shoots are found to make no effort to push. This weather is very fatal to Osier plants, and is prevalent in localities subject to spring frosts."]

FLOWERS FOR CUTTING—GLADIOLUS.

FOR forcing, the one sort grown to any extent is *G. Colvillei* The Bride. Its cultivation is easy, and where many flowers are required this ought undoubtedly to be grown. I have not cultivated any in pots for some years past, but hope to take up its culture again. Soil which is rather light and open should form the compost, and in this finer spikes are produced than can be had from a heavy soil. Pots 7 or 8 inches in diameter are better than those of a smaller size, and the corms being set in the pots as thickly as *Crocuses* a fine mass of flowers is produced. The plants will do well if introduced into a low temperature as soon as potted, and it is better to allow time for the production of roots before exciting top growth. The best spikes are produced in an intermediate house in which the plants have time to mature slowly.

Out of door culture may be modified to suit circumstances. A good time to plant is November or December, and if a large quantity is grown the period of cutting will be naturally extended, as the plants vary considerably in the time of flowering. To have them in quickly a south or west border should be chosen for the beds, but they do quite well in the open quarters. In the ordinary run of winters no harm accrues from allowing the ground to be frozen, but I imagine it is better to protect these along with *Ixias*, and so a slight protection of dried bracken is placed over the beds, and a few pea sticks laid on the latter keeps it close in windy weather.

I am of opinion that better results are obtained by yearly lifting the corms and replanting on fresh ground. The time to lift is when the foliage is becoming yellow. If left too long in the ground there is a risk of root-action being excited by heavy rains, and as complete rest at this stage is what the plant requires, such problematical questions as to whether the bulbs are weakened in consequence of excitement at this period is best set at rest by putting its possibility beyond dispute. There is a further advantage in lifting thus early, and that is the greater speed with which the work can be overtaken. A man goes along the rows and loosens the plants and the soil with a fork, at the same time grasping a handful of foliage and drawing the plants up. If left in the open for a few days the corms become perfectly ripened, and are harvested in a cool room until required.

The stage for cutting the flower spike is when the undermost flower is open. Nothing is gained by leaving them any longer, as the other buds open perfectly with the stalk in water, and the flowers so opened are generally pure.

Other early flowering *Gladiolus* are generally characterised by insipidity in colouring. They require planting in autumn, as if left until spring the finer section of *gandavensis* will be ready for cutting as soon as they. *Ne Plus Ultra* and *Queen Victoria* are perhaps the two best sorts to cultivate.

Among Lemoine's hardy hybrids some of the most distinct flowers for cutting are to be found. Their hardiness has been called in question. Of this I cannot speak from experience, as I always lift them; but in a brochure, published in 1890 by M. Lemoine, are some statements as to this point, which may be

sufficiently interesting to quote here. One of the parents—viz, *Gladiolus purpureo-auratus*, is stated to be "*parfaitement rustique*"—quite hardy. Sixteen years ago the first crosses were effected with the (then) best varieties of *gandavensis* and *Lemoinei*, and Marie Lemoine was the result. Of these he says, "They are hardy, and can, without the least danger, pass the winter in open ground. Further on this interesting statement occurs, "Now experience shows us that the more our seedlings approached in their shape, colour, blotches, and even in smallness of their corms the old *G. Lemoinei* the more perennial in character they remained (*plus ils restaient vivaces*); whereas those which possessed the greater part of the characteristics of the *gandavensis* endured neither our winters nor our soil so well." And again, "It is a valuable quality of our *Gladioli*, that of being able to resist any amount of cold in the open ground, under the shelter of 1 or 2 inches of straw or of leaves. However slight it may be, this covering is always sufficient."

Personally, I do not like the later varieties so well as some of the earliest raised sorts. As they become like the *gandavensis* section the likeness to these detracts from their usefulness. If they were glorified forms of *gandavensis* the resemblance could be submitted to with a good grace, but then they are barely up to the best forms of the latter. However, from the raiser's point of view, and on the lines he is working—towards complete hardiness—these larger kinds mean a great advance. For cutting purposes no better sort has been produced than *Lemoinei*. It is quaint, striking, and beautiful. Corms taken in quantity have decreased in price to a somewhat reasonable figure the last two years, and when they fall to the rate of *branchleyensis* we may hope to see it as much grown as that deservedly popular sort. This variety produces seed rather freely, and thus another though somewhat risky method of increase is in our hands. It is risky in respect to the seedlings varying greatly from the parent, many of them being very poor forms. Other good sorts for cutting are *André Chenier*, *La France*, *W. E. Gumbleton*, *Sceptre d'Or*, *Lafayette*, and *M. Levêque*. There are other sorts which please, such as *Etoile*, *Alsace*, *Lamartine*, *Vésuve*, *John Laing*, *Bossuet*, and others, but for cultivating with cutting as the chief purpose in view I find it much better to grow a larger number of a few good sorts. The *E. V. Hallock* type I do not like at all.

Of the *G. nanceianus* sorts I have grown only those first distributed. The one variety which gave me the greatest satisfaction was *De Candolle*. Last year the plants did not succeed, and this would go to show that these, like so many of the *gandavensis* section, do best from imported corms. This year I hope to have them better, and to hear good accounts from a grower in Ireland, to whom a number of small corms were sent for trial. There is some uncertainty prevailing as to the section with which the veteran hybridist of Nancy effected a cross with *G. Saundersi*, from which the original varieties of *nanceianus* were produced. *G. gandavensis* seems to be thought the particular section, and indeed we are informed that M. Max Leichtlin was the first to cross-fertilise with varieties of *gandavensis*. But M. Lemoine tells us that "Whereas Leichtlin had employed for his crosses varieties of *gandavensis*, we took care to employ for this work only the most characteristic hardy *Gladiolus* of Lemoine." These are claimed to be equally hardy with the *Lemoinei* hybrids. *G. branchleyensis* deserves a note to itself. It is an old English raised hybrid, and combines with the greatest usefulness as an autumn flower for cutting a fair amount of hardiness. In most seasons the corms can be left in the open ground, but the expediency of doing this is rather doubtful. It appears to be freely propagated from seed, imported corms producing flowers with slight variations. It is, moreover, the cheapest *Gladiolus* worth growing in commerce, so that we have, along with its general usefulness, the important factors of hardiness and cheapness.—B.

MUSSÆNDA FRONDOSA.

I HAVE for some years cultivated *Mussændas*, and they have never failed to be admired by those for whom they were provided and their many visitors. The plants, which have flowered throughout the winter and during the early spring months, have afforded a fine contrast to the effect produced by the *Poinsettias*.

Like the *Poinsettias*, the *Mussændas* are not admired for their flowers so much as the bracts accompanying them. In the former plants these bracts are rich scarlet, in the latter pure white. The plants are smaller than the *Poinsettias* in habit, foliage, and flower heads; yet I have frequently had pure white discs of *Mussændas* 8 inches in diameter, and when half a dozen of these are produced on one plant the effect is something to be admired.

But these plants are not of the easiest culture, and hence it is, perhaps, that they are so seldom seen in gardens. They are stove

plants, requiring much the same treatment as Gardenias, to which they are allied, both belonging to the natural order Cinchonaceæ. Yet the Mussandas require more closely pruning than Gardenias; but I have invariably had the finest heads from young plants which have been treated as follows:—

Select healthy cuttings of the young spring growth, but not too soft, and strike them in sand in brisk heat. Pot them off when rooted in small pots, using peat and a free admixture of silver sand. Plunge the pots in bottom heat and syringe the plants freely. Shift on as required, using loam with the peat when the plants have attained strength. Stop them once or twice, but not after July. I have occasionally struck five cuttings in a pot, and shifted them on without separating the plants, obtaining thereby good heads, but sacrificing compact habit.

During the growing season the plants require brisk heat, a moist atmosphere, and plenty of light. Until the pots are filled with roots they should be plunged in bottom heat, and after that period they should be placed on a shelf in the stove as near the glass as possible to prevent the plants being drawn. After flowering they should be rested, and subsequently cut down, starting them again in heat and renewing the soil; but young plants are the best.—W.

ZONAL PELARGONIUMS FOR WINTER DECORATING.

THOSE who require a grand display of this showy flower for decorating during the winter should now insert the cuttings of varieties chosen for the purpose. Nearly every grower has a selection of his own which he finds succeed best.

Insert the cuttings in 60-size pots, five in each, and close to the outside; the compost best suited at this time of the year being leaf soil with plenty of coarse sand to keep the whole open, so that water can pass away freely. A warm vinery or any other house with a genial temperature is the best position to strike them in.

As soon as they have plenty of roots they may be placed singly into 60's, and kept close for about a week, when they will be ready for a cooler and more airy atmosphere to insure a sturdy and compact growth. When these pots are fairly filled with roots they may be placed into those they are intended to flower in—namely, 32's. When they have started well into root-action they may be gradually hardened until they can be safely stood out of doors exposed to the full rays of the sun. The side of a garden walk or frame ground is a first rate position for them. Care should be taken not to let them become dry, as it would be injurious to the growth of the plants and cause them to lose their leaves.

They must be stopped and all bloom buds pinched off until about the middle of September, when they can be housed in pits and frames, and kept close to the glass with plenty of ventilation and liberal supplies of liquid manure, when they will soon be seen to push up abundance of bright flowers, which will be found most useful during the dull days of November and December. They can be grouped together with other winter flowering plants, such as Chrysanthemums, Salvias, Primulas, and Cyclamens. They are also useful for cutting purposes, and if kept in a temperature of about 50° they will give an abundant supply all through the winter.—W. PENTON.

EXPERIMENTS IN TREATING THE POTATO DISEASE.

(Continued from page 103.)

MR. HATCH states that the Colorado Potato beetle, *Doryphora decemlineata*, did not attack the Potato plants in the treated plats, an additional point of some value in the favour of the treatment. These experiments prove the efficacy of the Bordeaux mixture in arresting some unexplained disease, and from Prof. Goff's description would appear analogous to Mr. W. G. Smith's *Peziza postuma* and *P. sclerotiorum* of others. This disease obtained largely in a field of Potatoes that we observed very closely last year. The field was some 30 acres in extent, and the disease first appeared in the hollows, the tops of the Potatoes assuming a pale sickly hue, and in a short time were covered with a dense whitish coat on the under side of the leaves, the plants becoming brown and dried up in a short time; those infected the third week in August being quite leafless by the middle of September, and presenting a dried withered appearance very conspicuous by strong plants here and there remaining quite green and apparent healthy, the disease proving most viruluous on the spreading plants, whilst those growing strong and upright were comparatively free. In another field of about 25 acres a similar phenomenon appeared about three weeks later, this field lying higher and more open to the south-east of the other field about 600 yards away. The Potato tops collapsed in the last infested field as in the first, yet very much slower, the reason obviously due to the difference in the cultures. The cause, as usual, was attributed to the weather, and it

certainly was cold and wet enough to damp the ardour of the most sanguine; but the most remarkable thing was that the crop was lifted sound, though there was a difference, that of the plants in the field first attacked were not half a crop, while the crop of the plants in the field last assailed was three parts to a full yield. Farmyard manure carted direct from the yard into the rows was used in the first field; manure from fermented heaps was employed in the second field along with artificials. Those differences in the cultures were sufficient to account for the divergence in the results. The disease produced by the fungus, *Phytophthora infestans*, however, was widely distributed in 1891. The year was wet, favouring the disease, and the summer was cold, dis-favouring the growth of the fungus, consequently the crops were lifted comparatively free from disease. The worst diseased were in ground most warm and sheltered—that is, gardens. This seems to have been the case also in Wisconsin, U.S.A., and the experiment conducted there by Prof. Goff becomes strikingly phenomenal when taken along with the cultivator's (Mr. Hatch) additional notes, which we transcribe as follows:—

Rot (Potato) has not been prevalent here (Ithaca, Richland County, Wisconsin, U.S.A.; site, a hoilock, 1000 feet above sea level; soil, light clay loam, incumbent on Potsdam sandstone, and in a good state of cultivation) for a few years. In order to secure its development for treatment we ordered a barrel of seed from Ohio, where rot was plenty last year (1890), but failed to secure any diseased Potatoes. We then planted with such seed as we had, mostly Snowflakes (a good variety for taking disease), with a few mixed kinds. To still further ensure rot we planted late—May 31st—and supplemented four rows along one side of the plat, which we covered with a forkful of sheep manure in each hill. The heavy rains not only washed out some of the Potatoes, but so compacted the soil as to make them slow in coming up and getting a start. The last of July and the month of August were extremely dry and no rot appeared (dry weather remedists are welcome to any consolation found in that). Even the manured rows were sound and good, no *Phytophthora* being visible anywhere. (Note the mention of the manured rows, as evidence that Mr. Hatch was well aware of manure enhancing the liability of the plants to disease). There was, however, a blight of the foliage that has proved very general and wide-spread throughout all this region. (Just so, the dry weather was precisely the thing for distributing the spores of the fungus). The leaves turned yellow in spots, then brown, and the entire plants died long before the growing season was completed. The check rows in the experimental plat and my own Potatoes elsewhere on my farm were all seriously affected with this blight. By the 1st of September this was so emphatic that the check rows were easily selected from the plat, the treated plants showing most bright and green when frost came. Still there was an occasional hill among the treated plants showing the same trouble as the untreated, but not in so large a degree.

We had expected to use our field pump in a large barrel mounted on farm trucks with the Vermorel nozzle attached to the hose, but found we could not go over the plat and make the turns with the team without running into the Potatoes and injuring them; so we abandoned its use, and did the entire work by hand with our Nixon climax pump, using a No. 3 Nixon nozzle. We overcame the difficulty of clogging by having a piece of brass wire strainer cloth soldered over the lower end of the suction pipe. This had a mesh finer than the orifice of the nozzle, and was a complete remedy for clogging, not only in using the Bordeaux mixture, but also in all other sprayings done by us.

Another variation we made was in using the Bordeaux mixture. We hauled out for each treatment a barrel containing 12 lbs. each of copper sulphate and lime and 44 gallons of water, properly mixed to make the regular Bordeaux mixture. (This is the usual American solution of copper, used in making Bordeaux mixture, except that as many pounds of lime as of copper sulphate are taken, and represents a 2½ per cent. solution of copper sulphate). We also took another barrel of clear water. At the beginning we stirred the mixture, allowed it to settle a minute, and took out two or three pailfuls to use. After using enough of the mixture at full strength (the 2½ per cent. solution; please note this circumstance, for it is the key to the situation in contending with Potato fungus) for the south-west corner, clear water was added to the large barrel, and so on until the plot was gone over, 70 to 75 gallons in all being used. This would give about the following strength nominally to each plant:—South-west, full strength (2½ per cent.); south-east, two-thirds; north-east, three-fourths; north-west, one-half (1½ per cent.). There was, however, about the same appearance in the consistency of the liquid used for each plat on account of the sediment in each lot being about all the water would carry, and the appearance of the plants after spraying was the same in each plat. From the time of the first spraying the application was always more or less visible. I thought there was a difference in the vigour of the plants in favour of the north-east corner, but suppose the figures as tabulated by Professor Goff will show this matter clear, which is done against Mr. Hatch's view. At any rate, I venture the opinion, directly opposed to Professor Goff's, that it may be well to experiment with Bordeaux mixture in a more diluted form than the regular formula.

Another apparent result of the spraying was in regard to the Colorado Potato beetle. I found it necessary to go over the check rows with London purple the second time, but the treated part was almost entirely free from them. It would thus appear that where the mixture is used for rot and blight it may also be efficient as an insecticide.

The foregoing results of experiments by Professor Goff, and notes by Mr. Hatch, are valuable, as showing the efficacy of the treatments in

protecting the Potato plant against rots and blights; but there is an unaccountable discrepancy in the preparation of the Bordeaux mixture as given by Professor Goff and that furnished by Mr. Hatch. These have been pointed out in making the extracts, so that there can be no mistake in preparing the mixture, or in applying it as the exigencies arise with cultivators through blight, disease, and rot in their crops.

The spraying mode of application of the protection does not accord with English notions in regard to the weather—the Potatoes infested getting too much water from the clouds when disease is prevalent without giving them more liquid. That is a common-sense view of the case, and like many other notions utterly devoid of reason, inasmuch as common acceptance affords no ground for (but rather frustrates the effort at ascertaining) the facts. British belief is in powder, not in solution, a drying, not a wetting process, and as such ignores the fact that water is the great solvent, hence the prevalence of dustings, which have the disadvantage of being washed off by the first rains, and that before the fungicide has effected its object. Besides being liable to displacement, the powder can hardly be distributed and spread over the foliage, as to afford that protective coat so essential to the preservation of the Potato from the fungus. Still powder is a handy means of applying the copper sulphate, a boon to small growers—all not caring to make their own mixture, having the advantage of being always ready for use, and not losing material efficacy by keeping dry. Many growers are plagued with mildew on their plants—Roses and Vines, distracted by sight of blackened Tomato plants and diseased Potato, and are often at their wit's end through not having at hand a substance which can be applied promptly and safely, either as a protection or means of arresting the spread of the disease. Such mixture is in the market—not advertised, therefore it might just as well be at the bottom of the sea. I have been favoured with some rather extensive experiments with the powder, and am thoroughly satisfied on the point of copper sulphate being a complete protection to plants against their fungoid enemies. In the powder form the copper sulphate should be applied whilst the plants are damp with dew, or after rain, but morning is the best time, as the powder falling on the dewdrops spreads over the leafage, forming a thin film analogous to spraying, effectively protecting the Potato from the attack of *Phytophthora infestans* or any other fungus. To protect the Potato plants with the powder dust them when 13 to 15 inches high, repeat when the plants come into flower, again directly the foliage is all made, and the result may be full crops of sound Potatoes. Free sulphate of copper, however, acts so corrosively on Potato foliage as to blacken it, therefore the copper sulphate must be hydrated. How that is effected in the Bordeaux mixture has been alluded to, therefore it only remains to reiterate and make clear that the compound, formed by lime of a metallic (copper) oxide with water, is only safe to use when freshly made, and is innocuous to the foliage through the slow oxidation of such compound on exposure to the air.

How copper sulphate may be incorporated with lime so as to be used as a powder may not be stated, for the powder is (I believe) proprietary; but that it contains free sulphate of copper is unquestionable, for applied when the plants are quite dry some slight blackening occurs, or may occur, through flakes of the copper sulphate having escaped hydration. That, however, is not possible in the presence of dewdrops, for the copper flakes are rendered harmless by the lime-hydration in the dewdrops.

Perhaps a 1 per cent. admixture of copper sulphate with lime in powder would be as efficacious in protecting the Potato plant against the fungus, and in preventing its spread, as a 2½ per cent. Bordeaux mixture, for the hydration, assuming it to take place in a dewdrop, would make quick work of the zoospores moving about by their hairs (cilia), whilst the copper, spread as a film with the lime, would act as a most efficient protection to that part of the Potato plant, and all parts being similarly coated would render it invulnerable to the Potato disease. —G. ABBEY.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 9TH.

SCIENTIFIC COMMITTEE.—D. Morris, Esq., in the chair. Present: Messrs. MacLachlan, Michael, Wilks, Weiss, Dr. Scott, Dr. F. Oliver, and Dr. Masters.

Excrescence from Stems of Gooseberries.—Mr. Lister reported that there was no slime fungus on the specimens sent, and Mr. Massie, who also examined the specimens, failed to find traces of fungoid growth. From the presence of one or more maggots in the tumor Mr. Massie suggested that the outgrowths were attributable to insect agency, but on a review of all the circumstances it seemed as if the restriction caused by a shred, and the accumulation of moisture, were the predisposing causes of the growth.

Hellebores.—Mr. Burbidge, in a letter, commented on the circumstance that cut flowers of *Helleborus niger* remain unwithered much longer than those of *H. orientalis*, a circumstance probably due to a difference in internal structure. Dr. Scott undertook to examine and report. Mention was also made by Mr. Burbidge of the circumstance that flowers of *H. niger* gently forced last in good condition in water much longer than do flowers of the same variety in the open air. The flowers of *H. niger* last longer in water if the stalks be slit lengthwise from below upwards. The result is that the tension being removed the cut segments of the stem curl outwards away from the centre, and that a larger absorbent surface is exposed.

Snowdrops.—Flowers of *G. Allani*, *G. Elwesi*, and *G. nivalis* var. *Imperati*, were shown from Mr. Burbidge.

Monstrous Flowers.—A parti-coloured Tulip from Mr. Marshall and a curious *Cypripedium Dayanum* from Mr. O'Brien were shown, and will be reported on by Dr. Masters at the next meeting.

Disa grandiflora.—Messrs. Veitch showed a plant with a thick fleshy creeping rootstock, bearing leaf shoots by means of which the plant could be propagated.



ROYAL HORTICULTURAL SOCIETY.—We have at present at Chiswick one of the largest (if not the largest) collections of Apple trees in the world. There are, however, a number of good sorts scattered here and there throughout the country, and but very little known. The Council of the Society invite the owners of such comparatively unknown sorts to send grafts of them, with name, locality, age of tree (if known), and any other particulars to Chiswick for trial alongside of the standard collection. Grafts, &c., should be addressed to the Superintendent, R.H.S. Gardens, Chiswick. —W. WILKS, Secretary R.H.S.

— FRUIT FROM SOUTH AFRICA.—The Peaches, Grapes, &c., brought by the Union Steamship Company's R.M.S. "Tartar" from South Africa were opened for sale at Covent Garden Market on February 10th, and realised fairly good prices. The "Tartar" was detained at Cape Town by order of the Cape of Good Hope Government for twenty-four hours, and this detention may have somewhat affected the condition of the fruit. Messrs. Donald Currie & Co.'s Royal Mail steamer "Hawarden Castle," which arrived on Monday last, has brought the first large consignment of Cape Grapes to the London market. They arrived in good condition, and were on view and for sale at Covent Garden on Wednesday morning.

— MR. T. S. WARE'S NURSERY, TOTTENHAM.—We understand that Mr. Thomas Ware has now retired from the above business, which will be carried on by Mr. Francis Fell, who has held the position of manager for some years. The business title will continue to be Thomas S. Ware as before.

— THE WEATHER IN THE SOUTH.—After a period of changeable weather, a sudden change to low temperatures and winterly severity has been experienced within the past few days. The wind became easterly on Monday, very keen and violent, with frequent falls of snow, which continued to some extent on Tuesday. This was followed by sharp frost, the thermometer standing at 16° in several metropolitan districts on Wednesday, but the weather, though cold, was much brighter. Around London the snow has only just covered the ground, but in some places it is several inches deep.

— THE WEATHER IN THE NORTH.—In South Perthshire the weather for the past fortnight has been open, with scarcely an approach to frost. The 14th was wet and cold, and on the morning of the 15th the ground is white with snow. Some days of the last week were remarkably fine.—B. D.

— MAGNUM BONUM PEA.—A correspondent in last week's Journal inquires as to who was the raiser of the Magnum Bonum Pea, and where it can be procured. In this neighbourhood it is regarded as of local origin, and is much valued by many cottage gardeners. It was raised, I believe, at Beckington, near Bath. It resembles the old and well-known variety *Ne Plus Ultra*, and bears a heavy crop of unusually well-filled pods of delicious flavour. Its height is 5 feet.—W. S.

— BIRMINGHAM GARDENERS' ASSOCIATION.—At the last meeting Mr. James Martin, the Manager of Messrs. Sutton & Sons' nurseries, read an excellent paper on "The Gloxinia from 1739 to 1892," tracing its history and improvements, and giving much valued information as to its culture. The Reading Nurseries is a veritable home of the Gloxinia, and the houses of these plants, especially at the flowering time, afford a beautiful display. On the following evening the second annual social gathering took place, when nearly 140 members and their wives sat down to tea in one of the largest hotels, and a most enjoyable evening was spent. Short terse speeches, by Mr. W. B. Latham, who presided, and Mr. Martin, and an excellent programme of vocal and instrumental music by members and friends, rendered the meeting a very pleasant one.

— A CORRESPONDENT states that "the second annual dinner of the BALTIMORE CACTUS SOCIETY was held at the residence of a member, in Baltimore, on January 21st. The menu was very elaborate, the dishes being represented on the card by humorous adaptations of the names of Cacti and other plants. This Society is composed of ladies and gentlemen whom the Secretary facetiously designates as Cacto-maniacs, and is in a very flourishing condition. It probably is the only existing society devoted entirely to the interests of the Cactus."

— THE "Botanical Magazine," for February contains coloured plates of the undermentioned plants:—*Primula imperialis*, which was figured in the *Journal of Horticulture*, page 3, July 2nd, 1891, though this reference is not included with the others given under the description. *Hydnophytum Forbesi*, a peculiar epiphytic member of Rubiaceæ from New Guinea; *Begonia glaucophylla*, a useful, free, pink flowered species or hybrid; *Vicia narbonensis* (see page 130), and *Neobenthamia gracilis*, a slender creamy flowered Orchid from Eastern tropical Africa, belonging to the Vanda tribe.

— A SERVICEABLE LATE CHRYSANTHEMUM.—We are still cutting blooms from large conservatory plants of Goldfinder, a beautiful pale yellow sport of the Japanese Mrs. S. Carey. The plants were raised and treated much the same as those of other varieties intended for producing specimen blooms, with this difference, they were allowed to form as many branches as they would, and to flower naturally. As a consequence they branched freely, and though not particularly showy at any time we have been enabled to secure a capital supply of flowers, all having long stems, and not much fault could be found with the quality, Goldfinder not showing so much of an eye as Mrs. Carey.—W. I.

— MIDLAND CARNATION SOCIETY.—The second Show of this flourishing Society, which was referred to last week, is to be held in the Botanical Gardens, Edgbaston, Birmingham, on Saturday, August 6th. The schedule is a very comprehensive one, embracing various classes for florists' blooms and also others for border flowers, sprays, bouquets, and plants in pots. Copies with all particulars can be obtained of Mr Sydenham, Tenby Street, Birmingham, or of Mr. W. Dean, Dolphin Road, Sparkhill, Birmingham. The prize list and medals amount in value to about £100, and it is announced that if there should be a good surplus the Committee will give liberal donations to the Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution, so that the Society should have every encouragement.

— PEAR PRINCE CONSORT.—Though late in the season, kindly allow me space to recommend this really valuable Pear, as one which may be planted in Lancashire with a certainty—if cultural conditions are satisfactory—of getting a good return from it each season. We have here a tree of this variety trained as an espalier, which has never failed to carry an excellent crop for the past fourteen years. The fruit is of large size, pyriform, pale green, covered with spots of russet, and tinged with red on the sunny side. It is remarkable for the length of time it keeps its flavour. In fact, it is one of the first in this respect. From gatherings at three different times, our first dish was sent in November 14th and the last January 29th. It is a melting Pear with a most refreshing flavour.

— THE WINTER MOTH.—The males of this fruit-growers' enemy are about in unusual numbers at the present time (February 15th). As a rule, only a few may be seen so late as this, but during the past week they have been on view by hundreds. The March moth is also beginning to put in an appearance. Some of our entomological friends prophesied that we should not be so much troubled by the above pest, as last year was unfavourable to them. Present appearances are that there will be a full crop of caterpillars, particularly in orchards where nothing has been done to prevent their increase. A few days ago I was requested to go and examine a gentleman's orchard of several hundred trees: every tree, Apples, Pears, Plums and Cherries was more or less covered with the eggs of the winter moth, much to the gentleman's astonishment when pointed out to him. Some two years ago this gentleman had some old trees grease-banded. The bark being very thick it was not thought necessary to put paper under the grease; the consequence is that the old trees are most of them dead or dying, proving conclusively that grease is fatal to old trees, as well as to young ones, when applied in direct contact with the bark. It is a question if it would not pay for County Councils in fruit-growing counties to adopt some effectual mode of compelling occupiers to destroy such pests on their fruit trees, as they are a continual source of danger to those who do their utmost to keep such

enemies under. The best method of dealing with them has been repeatedly described in this Journal. That the caterpillar plague may be conquered is certain, as proved here. This year we have very few eggs on our trees, which gave us good crops of Apples last season and are full of promise now. I believe poultry do an immense amount of good by eating insects. The quantity of caterpillars they devour is enormous—not only so, but they are useful fertilisers, and they pay their way by sale of eggs. The actual profit, if any, is small, but the amount of good they do is untold.—S. T. WRIGHT, *Glewston Court Gardens*.

— NATIVE GUANO.—We have received a pamphlet from the Native Guano Company, 29, Bridge Street, Blackfriars, comprising fifty-six pages, devoted entirely to testimonials from cultivators who have employed this manure for farm and garden crops. The districts represented include all the chief counties of England, with Wales, Ireland, and even the Channel Islands, and the results recorded are very satisfactory.

— WEATHER AT LIVERPOOL.—All last week we had what might be termed a very mild spell of weather, and outside work was pushed along very rapidly. On Sunday it rained the greater portion of the day, and the wind was very cold. On Monday morning sleet and snow, accompanied by a biting N.E. wind, came down freely, as a reminder that we have not yet finished with winter. The night temperatures have been on the 9th, 32°; 10th, 39°; 11th, 38°; 12th, 34°; 13th, 29°; 14th, 26°, and 15th, 27°.—R. P. R.

— SHREWSBURY HORTICULTURAL SOCIETY.—At the annual meeting on the 11th inst., the Mayor presiding, a statement of accounts for the past year was presented, showing the income to have been £3334 10s., as compared with £2963 in 1890, and the greatest amount ever received in one year by the Society. The subscriptions for the year amounted to £423 7s., and the receipts at the Exhibition in August last were £2796. The amount of prize money paid was £428 7s. 6d.; amusements and fireworks, £421; bands, £253, and the profits on the year's exhibition was £970. A sum of £500 has been added to the invested capital, which now amounts to £3500. Since the Society started the annual balances have been expended in the improvement of the public grounds in the Quarry, the Free Library, and other charitable institutions of the town, and last year £753 was so expended. The balance in the banker's hands is £747.

— LONDON PARKS SUPERINTENDENT.—The London County Council held a meeting on February 16th, when amongst other business the General Purposes Committee reported that, under the resolution of the Council of November 3rd last, an advertisement was issued inviting applications for the post of Superintendent of the Council's parks and open spaces, at a salary of £700 a year. The applications were in the first instance considered by the Parks Committee, who at their request submitted to them the names of the three candidates whom they considered the most suitable for the appointment. Having seen the three selected candidates, and weighed their respective merits and qualifications, the General Purposes Committee recommended that Colonel Walker be appointed Superintendent of parks and open spaces, at a salary of £700 a year, upon the following conditions:—That he hold his office during the pleasure of the Council; that he be required to give his whole time to the duties of his office, and on retirement shall not make any claim to superannuation or pension. Mr. Corbett, as an amendment to the adoption of the Report, moved that, as it was stated in the advertisement that the age of the candidates must not in any case exceed fifty years, and as two of the selected candidates exceeded that age, the question should be referred back to the Committee for further consideration. Dr. Grigsby seconded the amendment. A long discussion followed, several members maintaining that it was not necessary to make any appointment, others that the matter should be delayed, and a third section that the best man had not been nominated. The Earl of Rosebery said he would generally be in favour of supporting the recommendations of the Committee, being convinced that they had been arrived at after careful and impartial consideration, but if compelled to vote on their present recommendation he could not vote in favour of it. Whatever its enemies might say of it the Council had preserved, without the possibility of question, its character for absolute immunity from anything like jobbery. It was most important that nothing in the nature of jobbery should attach to this appointment, and although he did not make the least imputation he remembered that they had acute and not very friendly critics outside. The advertisement stated that in no case must the age exceed fifty years, and it was not denied that the age of the gentleman now recommended did exceed fifty. In

the last three weeks of their existence it was not worth while to pass beyond the limits of the advertisement and make this appointment. A proposal to postpone the appointment until after March 5th, and another to re-advertise the post having been rejected, Mr. Corbett's amendment was put as a substantive motion, and was agreed to by a large majority.

— GARDENING APPOINTMENTS.—Mr. J. Tullett, for the past three years head gardener to Sir Edward Blackett, Bart., Matfen Hall, Newcastle-on-Tyne, and previously seven years foreman to the late Duke of Cleveland, Raby Castle, Darlington, Durham, succeeds the late Mr. Westcott as head gardener at Raby, and Mr. Atkinson, foreman at Matfen Hall, succeeds Mr. Tullett. Mr. H. R. Brown of Roydon Lodge, Essex, has been appointed head gardener to A. B. Welch Thornton, Esq., Beaurepaire Park, Basingstoke, Hants. Mr. Edward G. Gristwood, for the past two and a half years gardener to General H. J. T. Neild, The Chestnuts, Hayes, Middlesex, has been appointed gardener to Mrs. Tenot, Woodstone Manor, Peterborough, and commences his duties on the 22nd inst.

— PRUNING VINES.—The greater part of the recent contribution to this subject by "H. S.," page 108, is devoted to explaining what he intended to convey in his former note, page 6. If my critic will read the original article on the subject (page 489) with an unbiassed mind, noting the wide range in the method of pruning recommended under different circumstances, I think he will see at once that he has taken great pains to prove facts that I have not yet disputed (always excepting the difficulty about training the 2 feet shoot). There is one remark, however, in his latest note which ought not to pass unnoticed. "H. S." speaks of having charge of vineries in which the rods are only 2 feet apart. The sooner those rods are reduced in number, or the spurs thinned, the better for all interested in their well-being.—H. DUNKIN.

— PENTSTEMONS.—Somehow the Pentstemon has not worked its way in England into the popularity it enjoys in Scotland, and I wonder at it, for there is much marvellous beauty about many of the fine named varieties, and it is a plant easily cultivated. Seed may be sown now and the seedlings when pricked off soon make strong plants for planting out in May; but a warm, dry situation should be selected for them, and the soil porous and free, but not too rich. We should aim at getting as much flower as possible, and not exuberant growth. But to see the beauty and form of the improved varieties, some of the best named sorts should be obtained and grown, for as pot plants they are beautiful and decorative, and many of the shades of colours and pencillings and markings of the throat are distinct and pleasing. Young plants obtained now would make strong plants by May, and the propagation for the next year's supply is easy, simply taking cuttings of each in August, striking them in a cool place, and either keeping them in store pots in a cool place through the winter or placing into small pots. The old plants also can easily be kept in a cold frame, protected from severe frosts, but with plenty of air in fine weather.—W. D.

— JASMINUM NUDIFLORUM.—This is undoubtedly one of the most useful of all hardy climbers which flower in the winter and spring months. It will grow in almost any situation, but to see it in perfection during the early weeks of February it requires the shelter of a wall having a south aspect, and a rather dry soil. A thick sandstone wall here is covered with this useful shrub, and it supplies flowers which are especially useful for cutting. It has a capital effect when a few vases are entirely devoted to it, cutting the shoots from 1 foot to 18 inches in length, and arranging a few long pieces of the common Broom (*Cytisus scoparius*) with them. These leafless shoots at the present time of the year are of a beautiful bright green colour. The style of growth is exactly suited to that of the *Jasminum*. It requires but little pruning. As soon as the flowering period is over the shoots should be thinned and fastened to the wall at intervals, so that the young shoots as they grow hang loosely from it.

— WISTARIA SINENSIS now requires attention in pruning, and those who are not thoroughly satisfied with the way in which their plants flower, to leave more young wood than they have hitherto been in the habit of doing. The long trailing shoots which are freely produced during the summer months, where they are properly ripened, are capable of bearing wreaths of flowers. When the old branches are evenly covered with spurs abundance of flowers are invariably obtained by cutting the young shoots back to two eyes, but wherever branches devoid of spurs occur young shoots should be trained in to cover them. Suckers are freely produced from the base of old plants, and it is at all times a capital practice to train a few of these up the main stem, so that

they may be ready for filling up vacant spaces which sometimes occur through the loss of old branches, and in other instances spurs that have become gnarled and long may be entirely removed to make room for the young shoots.

— BANKSIAN ROSES.—When pruning and nailing creepers on walls and mansions at this time of the year the desire to secure trimness and symmetry is at all times commendable, provided it is not at the expense of flowering shoots, and I fancy that want of success in flowering these beautiful Roses is sometimes due to the fact that they are pruned in much the same way as H.P.'s. The real pruning of this class of Roses should take place directly after flowering, when the shoots should be cut back closely so that they may produce wood which will flower the following spring. The only pruning necessary now is to cut out very weak growth, and remove the points of shoots that are not sufficiently well ripened to flower.—H. D.

— THE HORTICULTURAL CLUB.—The annual dinner of this Club took place on Tuesday, the 9th inst., at their rooms, Hotel Windsor, Victoria Street, Westminster, and was, without doubt, the most successful one it has ever held. The chair was occupied, in the absence of Sir John D. Llewelyn, the Chairman, by Mr. Harry J. Veitch, Vice-Chairman, who was supported by nearly forty members and their friends. Amongst those present were the Rev. W. Wilks, the Rev. F. R. Burnside; Messrs. John Lee, Crowley, H. J. Pearson, J. S. Cousins, C. T. Druery, Arthur J. Veitch, George Bunyard, Harry Turner, T. W. Girdlestone, C. E. Pearson, Joseph Cheal, P. Soper, H. Percy Hall, James Webber, George Monroe, A. C. Wheeler, &c. During the evening a selection of most excellent music, both vocal and instrumental, was given under the direction of Mr. George Bunyard, and several good recitations were given by Mr. C. T. Druery and others. The Chairman, after the usual loyal toasts, proposed "The Prosperity of the Club," and spoke in strong terms of the excellent work which it had done in bringing together in social intercourse those interested in horticulture, both amateur and professional, thus ably filling an existing void, and he wished it many years of usefulness. This was responded to by the Hon. Secretary, who said that they had every reason to be satisfied with their position. They had this year been enabled to add to their small funded property, had been enabled to receive amongst them several of those gentlemen who had come to London to be present at the Royal Horticultural Society's meetings, and in many ways to advance the interests of horticulture. Mr. T. W. Girdlestone proposed "The Royal Horticultural Society," which was responded to by Mr. H. J. Pearson. The toast of "The Chairman" was given in sympathetic and forcible terms by the Rev. W. Wilks, whose remarks elicited warm approval from the guests. Some of the friends contributed some excellent dishes of Apples and Pears towards the dessert, Mr. Bunyard sending some fine examples of Glou Morceau and other Pears, Mr. Harry Turner Cox's Orange Pippin and other Apples, and Mr. Webber of Covent Garden some fine examples of Newtown Pippin and beautifully preserved samples of English-grown Blenheim Pippins, which were greatly admired. The meeting was a most successful one, and, it is hoped, will give a fresh impetus to the Club. Five new members were added, and all expressed themselves highly gratified at the excellence of the arrangements.



THE MAY FLOWER.

ONE of the most beautiful of the *Lælias*, and at the same time one of the most difficult to grow successfully, is *L. majalis*, the Flor de Mayo, or May Flower of Mexico. Concerning this fine Orchid, of which an illustration is given in fig. 19, the late Mr. B. S. Williams wrote as follows two or three years ago, to accompany a handsome coloured plate in the "Orchid Album" (plate 372):—"This beautiful species would appear to have been discovered early in the days of intercourse between Mexico and Europe, as it is mentioned by Hernandez in 1615, and to this day it must be reckoned amongst the very finest plants we have in cultivation. For the size of its bulbs the flowers are larger than any other Orchid with which we are acquainted, but it has never been grown to the extent which its merits entitle it to. Many

years ago this plant was in our possession, and we exhibited a fine specimen upon several occasions at the Exhibitions of the Royal Horticultural Society held at Chiswick, and at that of the Royal Botanic Society held in the Regent's Park during the months of May and June, where it was deservedly much admired ; but at that time (nearly forty years ago) this species was rarely to be

natives "The Flor de Mayo," or May Flower, and is dwarf in habit with roundish pseudo-bulbs, which bear leaves some 4 inches or more high, and of a light green hue. Peduncle about the same length as the leaf, usually bearing a single flower, which measures from 6 to 8 inches or more across. Sepals lanceolate, acute, rather narrow, of a uniform delicate lilac-rose ; petals twice the breadth



FIG. 19.—LÆLIA MAJALIS.

seen in bloom in our collections. Few *Lælias* even of the present time can eclipse this species in the size of its blooms, or equal the lovely soft colour of its flowers. Of this species there are from time to time large importations, and upon these occasions strong masses are easily procurable ; these with care will make showy specimens, which will well repay the pains bestowed upon them, and as they do not occupy much space, and can be procured at a cheap rate, they come within easy reach of all amateurs.

Lælia majalis appears to have an extensive range over Southern Mexico, whilst in some of its native habitats the temperature is said at times to fall below freezing point. It is called by the

of the sepals, oblong-ovate, but of the same colour ; lip large and three-lobed, the side lobes small, white inside with magenta-purple stripes, middle lobe large, rounded, emarginate, purplish lilac at the sides and white in the centre, marked with blotches, forming broken lines of magenta-purple. The blossoms are produced in May and June, and they remain in full beauty for nearly four weeks if the plant is kept in a warm house and the blooms preserved free from damp.

This *Lælia* requires somewhat different treatment from the larger-growing members of the genus. Although the mode of culture necessary is very simple, it still requires careful treatment, a suit-

able place being one of the great essentials to success. It is a small-growing plant, found naturally on the branches of Oak trees, and in situations where there is usually a strong current of air; under cultivation, however, we prefer small baskets for this plant, for the reason that less attention is necessary than when they are grown on blocks of wood. Good drainage is indispensable, and the material used should consist of rough fibrous peat and living sphagnum moss, with some medium-sized nodules of charcoal added. The baskets used should be as small as possible, and the plant raised well up on a cone-like mound, in order that the roots may ramble over the surface, but care must be taken not to overload the roots with soil, as if this falls into a state of decay, the roots soon become affected, and the health of the plant will rapidly decrease; should, however, the material get into a bad state, carefully remove it, and wash the roots before replacing the plant in the basket, but the plant should not be disturbed whilst the roots continue in good condition, as it is impatient of removal. During the growing season it enjoys an abundant supply of water, and hence the necessity of good drainage, whilst at the time of rest it should be carefully tended, so that its pseudo-bulbs and leaves may be kept in a plump condition. This plant should be suspended near the roof-glass, as it enjoys abundance of light and but little shade, and unless these conditions are well studied the growth does not ripen, and no flowers will be produced. The Mexican house is the most suitable structure for its successful cultivation.

Our illustration was prepared from a plant grown by Mr. W. H. Young, gardener to F. Wigan, Esq., Clare Lawn, East Sheen, who showed at the Westminster Drill Hall, on May 12th, 1891, a vigorous example in a basket, bearing four handsome flowers expanded and two buds showing. A cultural commendation was deservedly awarded for the specimen.

OPEN AIR PEACHES.

As a rule, anonymous critics may indulge in personalities and attacks on me to their heart's delight, but if I make any blunders corrections are welcomed from any quarter whatsoever. Nor do I wish to shelter myself from any slip of the pen that is made under the plea that the printers erred in the matter. If my readers will kindly read the offending passage quoted by "Nous Verrons" on page 102, thus: "When the trees are in full bearing order"—the last word being inadvertently omitted in my original MS.—very little more need be added. My meaning was plain enough, but "Nous Verrons" thought proper to ignore what was written in the last paragraph but one in my article on page 79.

With reference to my remarks on moving trees when in flower, or even when they have shoots on them 6 inches long, with satisfactory results, it does not follow I recommend the practice generally. There seemed to be no necessity for me to give my reasons for moving trees thus late; in fact, the article was quite long enough without them. Doubtless those "old fogies" for whom "Nous Verrons" appears to have so much respect could have told the readers of the *Journal of Horticulture* far better than I what it is possible to do with Peach trees, but why do they not do it, and not carp at the younger men for making a good use of their leisure time?—W. IGGULDEN.

PERHAPS Mr. Iggulden will be pleased to know that he is not alone in his new ways, as "Nous Verrons" calls it, of treating Peaches on outside walls, and I think the whole of his article on Peaches sound. When I took charge here four years ago some of the trees on the walls were in indifferent health, and as Peaches and Nectarines are highly valued, and expected to be had in quantity, I began to think, it being in May, as to the best ways and means to adopt to be successful. No indoor Peach is cared for here. I saw that some trees would require root-pruning, others removing altogether, so the bold experiment your correspondent has advised was tried. I severed part of the roots of the trees making strong growth, and in the autumn did the remainder, of course at the same time applying such soil as I thought best to cause fresh fibrous roots to issue from the cut-back roots. The best results have followed that practice, as will be seen from the following note sent me by my employer after receiving some Peaches from the trees operated upon the next year:—"The Peaches arrived in excellent condition, and we think them a marvel for outdoor fruits."

I have here 150 yards length of walls, from 10 to 14 feet high, devoted to Peach and Nectarine culture. The Peaches I find best here are Waterloo, Early Beatrice, Hale's Early, Stirling Castle, Bellegarde (Barrington and Dymond), two of the best, Crimson Galande, Royal George, Crawford's Early, Goshawk, Exquisite, Sea Eagle, Violette Hâtive; and of Nectarines, Advance, Humboldt, Goldoni, Spencer, Pitmaston Orange, Rivers' Early Orange, Elruge, Dryden, Violette Hâtive, Pine Apple, and Albert Victor. Lord Napier and Victoria crack with me do what I may, so I have discarded them with regret, and grow Lord Napier in pots. I fully believe that the outdoor culture of Peaches and Nectarines can be successfully accomplished if sorts are carefully selected; and if before planting the border and drainage are properly prepared, also by all means try to keep the roots near the surface. I use Thomson's manure, which causes a free but not rank growth.

Mr. Iggulden's practice as to getting a young tree or two every year is good advice, not only as regards keeping a young stock handy to fill

vacancies, but it also helps to encourage trade. I bought most of the trees here as maidens, and have this year rooted out old trees from 60 yards in length of wall, made new borders, and replanted young trees, four years now from the bud, at 8 feet apart, every other tree to be moved or cut out as those to be left extend in growth. I took from twelve to eighteen fruits from these trees last year, left on purpose to check a too luxuriant growth, which proved satisfactory. If "Nous Verrons" will re-read Mr. Iggulden's article he will see that he says it is advisable to cut one side, and the other in the autumn (not all at one time). I should not hesitate, if the case demanded it, to move a tree in bloom carefully. It has been done, and can be done again.

Mr. Iggulden has many new ideas, and having tried them tells his brethren. Let us in the interest of science and good gardening carefully test the new ideas, and if found better than the old ones publish them, at the same time remembering with the old pioneers who laid the foundation of our practice. This is not the day for fads, production is the order of the day in most places, and woe to the young man who goes in for fads instead of following out his own practical experience.—JOHN CHINERY.

VICIA NARBONENSIS.

THE "Botanical Magazine" for the current month gives a coloured plate of a plant possessing considerable interest as the supposed progenitor of the cultivated Bean. In referring to this Sir Joseph Hooker has the following remarks:—"The chief interest attaching to *Vicia narbonensis* rests in its having been supposed to be the origin of the common Bean (*Vicia Faba*, Linn.; *Faba vulgaris*, Moench.). For this supposition the two weightiest arguments are (1) that the two plants belong to, and are the only species of one and the same section of *Vicia*; and (2) that *V. Faba* is said to have been found wild within the same area as that covered by *V. narbonensis*, viz., the desert of Mungan, in Mazanderan on the southern shores of the Caspian Sea, where it was collected by Lerche, a Russian traveller, whose specimen is preserved in the Herbarium of the St. Petersburg Botanical Gardens. With regard to the first argument, it is much invalidated by the fact of the differences in almost every organ of the two species, especially in the strongly nerved, usually serrated leaflets of *V. narbonensis*, with many very spreading nerves and strongly reticulate nervules, and its flattened pods, which are remarkable for the little bristles with bulbous bases along both sutures, and of which bristles I find no traces in the cultivated *V. Faba*.

"On the other hand *V. narbonensis*, which has an immense geographical range, in cultivated and virgin soil, from Southern France to the Caucasus, and from North Africa to Arabia, Persia, and North India, is a variable plant, the stipules being sometimes almost entire, the number of leaflets varying from two to eight and from quite entire to acutely deeply toothed. Their nervation too varies, though I never find the few almost straight nerves of *V. Faba*, the leaflets of which are three-nerved from the base. Then again, though *V. Faba* was no doubt found apparently wild by Lerche, there is no evidence that it was indigenous; and Boissier, whose knowledge of the Oriental Flora was unrivalled, expressly says that he never saw it in an indigenous state. The only author who expressly claims to have seen *V. Faba* wild is Munby, who includes it in his "Catalogus Plantarum in Algeria sponte nascentium," as being found at Oran. His specimen is in the Kew Herbarium, and ticketed by himself, '*Vicia Faba*, L., spontanea in pascuis argillosis, Figuia, Oran, Maii, 1865,' but Cosson, whose knowledge of Algerian plants ranked with Boissier's of Oriental, affirms that he has never seen a wild specimen from North Africa.

"For some of the above information I am indebted to M. De Candolle's valuable '*Origine des Plantes Cultivées*,' where all the very earliest authorities for the history of the cultivated Bean are given, together with much interesting information. This author does not favour the hypothesis of *Vicia narbonensis* being the origin of the Bean, but rather appears to consider the two plants as generically distinct. On the contrary, Bentham, who made the Leguminosæ a life-long study, says in the "*Genera Plantarum*" (vi. p. 525) that *V. Faba* only differs from *narbonensis* in the thicker subfleshy or coriaceous pericarp, and is perhaps a race of that species produced by cultivation.

"The specimen of *V. narbonensis* figured in the "*Botanical Magazine*" was raised from seed by Messrs. Sutton & Co., the eminent seedsmen, and sent by them to Kew for determination in June of last year."

SLUGS AND THE FROST.

IT is often supposed that frost destroys the troublesome garden slug, but I believe it is more imaginary than real, for if ever frost could destroy slugs I should think it ought to have done so this winter. The suddenness of the frost, following as it did on a very wet period, gave them little opportunity for burrowing into the soil beyond its reach, and this fact raised the hope of a possibility of their destruction. Unfortunately, I find they are possessed of a constitution sufficiently vigorous to withstand a period of low temperature without any apparent harm. While the ground was in a frozen state I could find plenty under the shelter of vegetable foliage where they happened to be in close contact with the soil, and in cutting small Lettuces from a border directly after the thaw commenced I found them quite as healthy as though there had been no frost. A small Lettuce in times of sharp weather certainly could not provide a very warm shelter, but it evidently proved sufficient. I have

had ample evidence since that it is futile to hope for the absence of slugs during the coming season, particularly the black one, which is so destructive to vegetation and so difficult to destroy. I hope that my experience may not prove general.

In old gardens, and where the soil is heavy, they seem always more abundant than on lighter ground, causing much inconvenience, and unless there is time for handpicking in early morning and late evening there is hopeless chance of keeping them to small numbers so long as our summers are the same as those of the two last years. I notice in last week's *Journal* a correspondent writes in a very hopeful strain of the chance of a partial riddance of slugs on account of the low temperatures experienced during the present winter, but one must not take a verdict from such slender evidence as their absence from paths in mild weather in winter furnishes, or disappointment will be sure to crop up a short time hence, when rain showers are frequent, and vegetable and other seeds are pushing through the soil. The frost penetrated deeply and gave but slight warning, but slugs remain living witnesses as to its ineffectuality of putting an end to their existence, so that gardeners are left to deal with them as best they can or as individual conveniences dictate, and in many establishments time can be ill spared for a daily search among the crops for the purpose of destroying them, a remedy, however, more valuable than dusting frequently with substances like soot and lime when it can be adopted.—W. S.

PARSLEY ALL THE YEAR ROUND.

THE Parsley is one of those popular herbs which are used in every household, and for various purposes commands a ready and remunerative sale during the interval from Christmas up to the middle or end of May. Before and after the above mentioned dates it is in equal demand, but being fairly plentiful then, the price realised is small, except where large breadths are grown specially for marketing in large towns. Then it will yield a fairly good return for the space and labour devoted to its culture. However, it is chiefly as a kitchen garden plant that I shall treat of it in this paper.

Parsley makes a very telling edging for kitchen garden walks, that is, growing alongside the permanent edging of Box, flints, or tiles, and in such positions, as well as in rows 1 foot apart, in borders 8 to 12 feet wide, in front of walls or fences having south, west or east aspects. However, market gardeners necessarily grow large breadths of this much sought after herb in the open field. Parsley will succeed in any kind of fairly rich soil between light and heavy in texture, the site being, as already stated, well exposed to the south, west or east. In private gardens a good supply of curled Parsley throughout the year is of great moment, as all professional gardeners know by experience. Every year we hear and read of failures in the culture of this very "homely" plant, failures which, perhaps for the first time, awaken the cultivator to a sense of the real value of having a good supply of this seasoning plant, and the necessity for considering or learning how this can best be done. The details are not far to seek. Due regard should in the first place be paid to the preparation of the ground and sowing the seed, and afterwards to carefully tending the cultural requirements of the plants.

As a matter of course, the ground intended to be cropped with Parsley should, if necessary, be dressed with well decayed manure and dug, the soil trodden when dry enough not to stick to one's boots, raked level, and surface-dressed with fresh soot before drawing the drills, 1 foot apart and 1 inch deep, either for the reception of the seed or the transplantation of the seedling plants. The latter is the preferable method of procedure to follow both for early and successive crops. If the ground is naturally stiff it should, in addition to giving it a coating of manure of the description indicated, be dressed with leaf mould, burnt earth, or any other light vegetable substance that may be at hand, and be ridged in the autumn, levelling it down when dry, a few days before sowing or transplanting in spring.

Two or three sowings in the year will be ample. The first should be made in heat towards the end of January or early in February, sowing the seed somewhat thickly in an ordinary sized cutting box, efficiently drained and filled with light sandy mould, and covering it lightly with some of the same compost, making it firm before and after sowing with a piece of board. Then water through a fine rose, cover with a square of glass, and sufficient moss to exclude light and air, and place the box in a forcing house or hotbed, where in due time the seedlings will appear, when, of course, the moss should be removed and the glass tilted a little. Shade with paper during the brightest part of the day for a few days until the seedling plants become inured to light; afterwards gradually hardening them before transplanting out of doors. The second sowing should be made in March in a warm corner out of doors, and the third about the middle of July. Where the above-mentioned accommodation does not exist excavate a space of 9 or 12 inches deep, and 18 to 20 inches square under a south wall or fence, and fill it with horse droppings, or a mixture of hot dung and leaves if the droppings are not at command, covering this with 4 or 5 inches deep of fine, light, rich soil; and in this sow the seed in the manner indicated, and cover it with a square or two of glass, protecting from frost with a mat, fern, or litter. As soon as the plants appear a little air should be admitted to them to ensure a sturdy growth, gradually increasing the amount given until the young plants are finally transplanted. This should be done when they are a couple of inches high, setting the plants with a pointed stick, either in single rows on each side of walks or in a border in rows 1 foot apart and 6 or 7 inches from plant to plant in the rows,

make the soil firm about the roots in planting, afterwards watering through a fine-rosed watering can to settle the soil about the roots. By sowing a small patch of seed and subsequently transplanting the seedlings space is greatly economised, as the piece of ground intended to be cropped with Parsley may not be ready for six or nine weeks after the time the seed should be sown, therefore it will be readily seen that the system recommended has special advantages over the older method.

Moreover, Parsley transplants excellently if the operation is performed in showery weather and care is taken that the roots are not bent in the process. I may here say that some people are very superstitious about transplanting Parsley, fearing that something bad would befall them in consequence thereof. This, of course, is all nonsense. I have followed the method of procedure recommended above during the last twenty years with the most satisfactory results, and have been the means of inducing hundreds of others to follow the same practice with equally satisfactory results. The last planting or sowing should be made in a warm and sheltered situation—all the better if in a border under a south or west wall, where the plants can be easily protected from frost by an improvised frame and shutters, fern, long litter, or any kind of protecting material.

In the event of there being a long spell of hot, dry weather, the plants—especially if they are growing in a rather light well-drained soil—should be frequently watered at the roots, otherwise they make a very meagre growth, which will become a prey to mildew. The plants should also be kept free from weeds, and have the soil between the rows stirred frequently during the summer and early autumn months with the Dutch hoe, and old or damaged leaves should be removed as soon as they appear to make room for the development of fresh ones, which will spring up soon after the old or coarse leaves have been cut over.

Grubs of various kinds sometimes work havoc among plantings of Parsley by eating the top and roots of the plants. The Onion maggot being the most destructive. The attacks may be effectually averted by strewing fresh soot over the ground just before sowing the seed or transplanting the seedlings, and scratching it into the ground with a rake. There can be no room for doubt in the mind of any practical gardener or farmer as to the value of soot as a fertiliser and purifier of the soil when properly applied. I annually surface-dress with soot ground being prepared for Parsley, Carrots, Parsnips, Turnips, and Onions, and to the efficacy of these dressings I attribute our perfect freedom from blemished roots, as few insects of any kind are found in ground so dressed. Worms and grubs, as a rule, are only found in impoverished soil and ground rendered foul by over-liberal coatings of rich farmyard manure, in which ground grubs and large fat maggots are to be found in plenty, as the condition of the root produce of such land amply testify. Mildew in Parsley, as in other crops, is caused by either excessive heat and dryness at the roots, or by an excessively cold and moist atmosphere prevailing during the summer months or a portion of them. The leaves most affected should be picked off, and the others dusted while damp with flowers of sulphur.—H. W. WARD, *Longford Castle*.

AZALEAS.

THE first monthly meeting in 1892 of the Sheffield, Hallamshire, and West Riding Chrysanthemum Society was held at the Orchard Street Museum on February 10th, when Mr. W. Hannah, gardener to T. Wilson, Esq., Oakholme, Sheffield, read a brief but interesting paper on "The Azalea." He first alluded to the merits and usefulness of the Azalea for producing bloom from November to May and June with a sufficient stock of plants and suitable varieties. He then touched briefly in detail on the three methods of raising Azaleas—namely, by seeds, cuttings, and grafting. He advised growing Azaleas in a cool house, and condemned the system of placing them outdoors in summer, as he considered it was the cause of many losses as well as sickly and unhealthy plants. As Mr. Hannah is a most successful grower his remarks had considerable weight. An interesting discussion followed, in which information was asked on the best time for potting Azaleas, and the treatment required by imported Azaleas immediately on being received; also on ensuring buds being set early. In reply Mr. Hannah said, the way to get early flowers was to have early flowering varieties. Some were very much earlier than others. Stella was a very good variety, so was Mrs. Turner. It was impossible to get the variety Brilliant in early. Chelsoni would bloom early. He advised potting after blooming.

Mr. Collier said, one of the earliest varieties he was acquainted with was Narcissiflora, a pure white very double variety, resembling a double Narcissus. It was earlier than Deutsche Perle. It sets its buds early, and blooms in November without any forcing whatever. To have Azaleas early in bloom they must make their growth early. He warned amateurs against allowing their plants to become dry, but if that ever did occur the best way to soak the ball of roots was to plunge it in water and let the plant remain some hours.

Mr. Haigh thought Mr. Hannah had given the essence of Azalea growing. He had had many opportunities of seeing his plants, and during the season he could always cut abundance of bloom. With regard to the treatment of imported plants, Mr. Haigh advised that they be potted as soon as possible on arrival. They are then furnished with a good ball of fibrous roots. If this ball of roots is dry soak it in water and allow it to drain, and then pot. If peat is not at hand leaf mould will do as well, but it must not be the fermented kind. Take care not to have the pot too large. Many amateurs err in three ways. They use

too large pots, do not pot firmly enough, and give too little drainage. The material cannot be made too firm. The Azalea is a very fine-rooted plant, and if the soil is not firm the water runs through the loose soil instead of moistening the whole mass equally. Another way in which amateurs fail in Azalea culture is in neglecting the plants after blooming. They should be taken in hand and prepared for another year's flowering, but letting them get dry is fatal to success, and often to the plants altogether.

He then alluded to the benefits of syringing when plants were making new growth. By syringing the bark gets moist and soft, and encourages the sap to move readily. When the branches and stems are thoroughly moist the pores of the wood are open and the sap flows easily. New wood must be had before flowers can be produced. Have new growth well ripened, then there will be no fear of not having bloom. Another question asked Mr. Hannah was, whether it would not be better to place Azaleas outdoors in summer in preference to keeping them in a mixed greenhouse where they did not get so much air?

Mr. Hannah thought that if no provision could be made to keep them inside he should erect a shade over them during hot sun and stormy weather. If Azaleas are exposed to all the elements they lose the colour of their foliage and it becomes stunted, the buds get dry, and ultimately become blind. Outdoors they are liable to have too much wet, which brings on disease.

A vote of thanks to Mr. Hannah was ably proposed, seconded, and supported, and the Chairman (Mr. H. Slaney) was thanked for his services. At the next monthly meeting, March 9th, C. E. Shea, Esq., of Sidcup, Kent, will read a paper on "The Chrysanthemum, from Potting to the Exhibition Board."

GRAPES FOR EXHIBITION.

[Read at the Bournemouth and District Gardeners' Association, Jan. 20th, 1892, by Mr. C. WARDEN.]

(Continued from page 104.)

MUSCAT OF ALEXANDRIA, probably introduced from Alexandria, is one of the oldest varieties in cultivation. There are records of some very fine specimens of this variety which are both large and productive, and it is justly pronounced the queen of Grapes, and is one of the best either for home use or exhibition. Where sufficient heat and light can be commanded it should do well. Unlike the Black Hamburgh and some other black kinds, almost all the white varieties do best when a good amount of subdued light reaches the bunches, and Muscat of Alexandria is no exception. The ripening process may be hastened by tying the leaves aside, but when this is done they are very liable to scorch or become brown. The best results will follow a fair amount of light for a longer season.

Gros Maroc was introduced by Mr. T. F. Rivers from M. Vibert's of Angiers, but has remained comparatively obscure until the last six or seven years. It is an exhibition Grape in every sense of the word, being large in bunch and berry, carries a fine bloom, and can mostly be relied upon to colour well. This Grape, more than any other, injures the reputation of such varieties as Madresfield Court and Black Hamburgh when admitted into competition with them, for only ordinary examples of Gros Maroc will have the advantage of fairly good examples of the others when judged on the ordinary lines. Too often these late varieties, although coloured, are not sweet, but those who have seen this noble Grape as it is sometimes seen at our best fruit shows cannot but admire it, and when it is well ripened and allowed to hang, say until October, after being ripe about a month or six weeks, it is of fair table quality.

Black Alicante is of Spanish origin, and has been cultivated in this country for many years, but it is to Mr. Meredith, late of the Gorston Vineyard, that the credit of the popularity of this Grape is due. It may be said to be everybody's Grape, as it seems to succeed everywhere, and sometimes under very adverse circumstances. The Vine is of robust growth, good constitution, and produces abundance of large bunches, sometimes weighing 8 lbs. or 9 lbs., but more commonly 2 lbs. to 4 lbs., sets well, and invariably colours well. This variety is very liable to produce wide shouldry and spreading bunches, but these are of little value for exhibiting. Long tapering bunches, with well proportioned shoulders are the best, and if size of berry, colour, bloom, and weight can be combined, success is insured.

Mrs. Pearson was raised from Alicante crossed with Ferdinand de Lesseps by Mr. Pearson, of Chilwell, and was first brought before the public in 1874. It is a Grape that is not nearly so often met with as its merits entitle it to be, and as it becomes better known I believe it will become more generally cultivated. The Vine is of good constitution, a robust grower, and free fruiter, carrying handsome bunches, and the berries, when ripe, put on a beautiful golden colour. The berries are round and a little undersized, but of first-rate flavour, in these latter points taking after Ferdinand de Lesseps more than Alicante. The coolest end of the Muscat house is the best place for this Grape, which is a first-class keeper, hanging, if anything, better than Muscat of Alexandria.

Gros Colman is of Hungary origin, and was introduced from Angiers to this country. But to Mr. Standish of Ascot is due the credit of first bringing it prominently before the public in 1861 or 1862, and more recently Mr. W. Thomson of Clovenfords. This noble Grape must always take a high place amongst exhibition kinds in the autumn months; but like some others, being presented in bad condition has been the means of bringing it into bad repute, but well grown and well

coloured examples would be hard to beat about Christmas among the black kinds. It is not an easy matter to point out why so many fail to colour this Grape, but often overcropping has much to answer for in this respect, it being heavy both in bunch and berry, and so often deceives many when thinning the bunches. Sometimes failure may be attributed to the starvation fare, and at others to not giving it a season long enough. This variety with me often commences to colour early in August and does not finish till far into October.

Alnwick Seedling is a Grape of comparatively recent introduction, and was first brought to notice by Mr. Bell in 1876. It subsequently transpired that it was raised at Alnwick Castle, hence the name now adopted. It is an extremely handsome and useful Grape, and were it not for its fickleness in setting badly it would come still more to the front. The viscid matter which exudes from the pistil of the berry when in flower seems to throw off rather than retain the pollen grains that may fall upon it. A moderately high and dry atmosphere, early ventilation, and the removal of the superabundance of this fluid, and the fertilisation with the pollen from some other free-setting kind, is the best remedy for this evil. This variety is the blackest of all black Grapes. So dense is the colour that when a bunch is held to the sunlight not a trace of red can be seen. It also makes a good bunch, the berries swell to a good size when properly set, and carries a beautiful bloom. It is of fair table quality during October and November. The Vine is a good grower.

Buckland Sweetwater is of English origin, and was raised at Buckland, near Reigate, by a gentleman who brought the seeds from the continent. But to Messrs. Ivery of Dorking is due the credit of retaining and raising the stock, and subsequently sending it out in 1860. This Grape, like some others, is not in high repute as regards flavour owing to its being presented to table either badly grown or over-ripe. In the latter case the berries are as though they were filled with sweetened water, in which case it is not good, but catch this Grape just right, and it is as firm in flesh as Hamburgs, and thin in the skin.

Foster's Seedling is the rival to this Grape, but the dull, cloudy colour and small berries that are only too characteristic of the last-named makes, in my opinion, Buckland Sweetwater preferable. The Vine is of good constitution, producing abundance of bunches on well-ripened wood, and colours to a bright amber. This Grape has the peculiarity of not throwing off the capsule of the flower until after the berries are set; therefore it is almost always self-fertilised.

Muscat Hamburgh is a very old variety, and has been known under several names, such as Black Muscat of Alexandria, Red Muscat, and Venn's Black Muscat. This kind is without doubt the best flavoured black Grape grown, and therefore, if it can be had in fair condition, it should have weight with the judges. Unfortunately, in many places, it is much addicted to shanking, and is also a difficult Grape to colour well. The foliage of this variety is tender—much after Muscat of Alexandria in that respect—and it would, in my opinion, do best at the shadiest end of the late house, as it does well with me in such a position. Whatever may be said against grafting good varieties on inferior stocks, I am of opinion that much good would result from giving this kind the benefit of the roots of a more robust variety—say, Alicante or Black Hamburgh.

Lady Downe's was raised by Mr. Foster, gardener to Viscount Downe, about the year 1835, and was sent out by Messrs. Backhouse of York about eighteen years after. It was obtained from a cross between Sweetwater and Black Morocco, and the seeds were saved and sown by Lady Downe herself. The same potful of seedlings also produced the variety known as Foster's Seedling. Lady Downe's is an indispensable variety, and were it not for its berries being liable to scald from fluctuations of temperature during the stoning period, it would be one of the most reliable, if not the most reliable, late Grapes grown. It is an enormous cropper, often carrying two bunches to a lateral and finishing them well. The tapering form of the bunch—when the ungaitly shoulder has been removed—and the strong stalk to the berry fits it in every way for late keeping, and it is, without doubt, the best late-keeping Grape from Christmas onwards.

Foster's Seedling was raised by Mr. Foster at Benningborough Hall, York, on the same date as Lady Downe's, and was not brought before the public until 1860. It is a Grape of first-class constitution, an abundant bearer, and the best companion to Black Hamburgh that can be found among the white kinds when forced early. I have made my selection so long that it must be brought to a close, but before doing so the merits of two or three others might be mentioned. Gros Guillaume is an extremely handsome Grape, and Mr. Roberts of Charleville Forest, Ireland, has done much to bring this variety under notice. If for no other purpose, it would be worth growing in many places for the leaves alone, as they die off to a beautiful red, which is very rich under artificial light. Trebbiano is also a good white Grape for autumn use, and Chasselas Napoléon bids fair to become better known than it is at present. It is a white Grape, producing abundance of handsome tapering bunches, and is truly a white and not amber Grape.

Mrs. Pince's Black Muscat, if mentioned last, is not least as regards flavour, for it will rank as one of the best in this respect. It was raised at the Exeter Nurseries from a seed of Muscat of Alexandria; and Black Prince, a notoriously bad-keeping Grape, is supposed to have been the pollen parent. Where high-flavoured Grapes are insisted upon Mrs. Pince should be included. A noted grower once said of the Rose, "Treat it like the Vine—grow hard and prune hard." This may or may not be true; certainly size is of little value without finish. Some growers prefer to prune to a good bud—that is, a plump bud, sometimes

situated either third or fourth or more from the base of the laterals and sometimes with good results. My experience is that when several buds are left it is best not to cut out those not retained for carrying a bunch, but to leave them to grow and make leaves and growth to some extent. But the two buds that form the base are hard to beat, either for home supply or exhibition, as the Grapes usually finish better.

Many other matters might have been dealt with were there time, among which may be mentioned watering, stopping the shoots, tying down, thinning the bunches and berries, and last ventilating. To sum up these several matters in as few words as possible—when water is given supply it abundantly; in stopping, pinch the point of the shoot at two leaves beyond the bunch as soon as it can be done without injury to the bunch or leaves retained; and later toppings according to the space allowed, as I believe in having the roof covered with foliage. Thin the surplus bunches—some before coming into flower, and the others as soon as they are seen to be properly set, and the berries as soon as they commence to swell, and the good berries show by their taking the lead. The tying down should not be done too soon, but allow the heel to gain a little strength before finally tying; and last, but by no means least, attend to ventilating. To deal with this important matter to its fullest would occupy the full length of my paper. To sum up, I would say, Open early and close early, and do not wait for the temperature to rise to a given point in the morning before ventilating, or condensation on the berries is sure to follow.

THE FORMATION OF A CARRIAGE ROAD.

MUCH as we are indebted to our early ancestors for the very substantial way in which they formed their roads—roads which even at the present day seem to bid fair to witness the decay of others that are many centuries their juniors—there was nevertheless something in old Roman roads which would not have met the requirements of the present generation. Still we may wonder that the Romans were able to accomplish so much as was done, their massive walls and solid buildings, as well as their most substantial causeways, crossing the country in various directions; but then it must be remembered that all travelling was done in those days without the aid of wheel carriages. Horses, bullocks, and foot travelling were the modes adopted at that time, but with the advance of wealth other modes of travelling were required, and roads of a kind on which wheel carriages could be used at all seasons had to be provided. Coeval with this improved state of road-making it was discovered that curving round the base of a hill was not any longer than going right over the top of it; for notwithstanding the assumed theory that the up-and-down-hill road is the straightest, it is in reality no straighter than the curved one. In practice a considerable space is often sacrificed, and as it frequently happens for a gardener to have to set out a road through very difficult ground, a few plain hints may perhaps be of some service to those who have not had much experience in such work.

Assuming that a carriage road is wanted to unite the mansion with the principal highway, the route being through a dense coppice. The ground is very uneven, perhaps, along the side of a river or stream, and with now and then very steep banks. On a place of this kind considerable excavations will be required, but some judgment will often lessen this by the designer of the road making himself thoroughly acquainted with the whole of the ground before a spade or axe is put to use. The ground should be gone through several times, and if the bed of the stream be handy it forms a very good guide, and a rough idea of the ascents and descents to be made will be thus obtained without the aid of any instruments whatever. Instruments are very useful, but the plain man can very often do very well without them, the eye enabling him to judge of the difficulties in the case, and to balance the ultimate result with the labour entailed. While the work is in hand let it be well done—that is, let a proper foundation be made, with gradients of a kind that are not likely to be found fault with hereafter, for the complaint—"that it is a pity that such and such an excavation or embankment was not made at first"—ought never to be heard; for be it observed that a road of the kind in question ought to be done for perpetuity; and where there is a necessity for excavation, which in all hilly ground is sure to be the case, it is much better not to begrudge the cart or wheelbarrow work at first, as it cannot well be done afterwards.

In the formation of a road along the side of a steep hill, with irregular gullies crossing its course, a greater or less amount of excavation of the one side and embankment on the other is indispensable. Care, however, ought to be taken at the beginning that the proper level, if we may call it so, is started with. More than three-fourths of those not having had experience in such work start too deep, or, in other words, they do not give sufficient credit to the filling-up qualities of the material they excavate, the result being that they find they have more than they have room for. This arises from not remembering that a cubic yard of solid excavation does the filling-up of quite $1\frac{1}{2}$ yard of embankment, consequently

the material is not all wanted that ought to be removed. Some little measurement will obviate this; but many experienced people disregard such measurements, and judge by the eye how much filling-in a certain cavity will take, and how far an excavation of a certain depth will go towards that object. Of course everyone knows that there is a sinking of embankments, and what takes place during the time the works are in hand must be made up; heavy rains and carting will tend to consolidate the mass. Where bridges are needed they ought of course to be erected before the groundwork approaches them. In order to ascertain the gradients some rough survey ought to be made and levels taken. If, for example, the ascent be 120 feet in half a mile, a very little knowledge of figures shows that if excavation could be carried carefully out from end to end there would be an inclined plane of an easy rise of 1 foot in 22. A gentle and easy rise, no doubt; but it is not always easy to excavate the ground so as to have such a uniform rise, as very often the conformation of the ground almost compels a part of the road to be much steeper and a portion even level or with little rise at all. This state of things must be met as it best can, taking care in all cases after once commencing the ascent not to descend again if possible. Although there are plenty of roads that ascend the hill with a rise of one in fifteen, and some as steep as one in twelve, it is better to spread the ascent into more space if possible; one in eighteen being fair trotting ground, that may be taken as a guide.

Now, in carrying a road through a coppice it is good practice to cut with a spade a series of small level spaces all along the intended line of route at about 50 yards from each other, or further apart if they can be seen readily; an engineer's level will then enable the respective heights of each to be ascertained. The whole should be committed to paper, so as to give the profile of the ground, and the places where it is prudent to excavate and where to be filled up will show themselves at once. In levelling a knowledge of geometry is no doubt valuable, but there are plenty of cases where such instruments as spirit levels are not cared for, the sole guide being the eye, aided by the judgment necessary to grasp quantity, and, as a friend once expressed it, see into mountains.

Where the excavation is a deep one and the cuts through a sort of a ridge it is better to begin at both sides, taking a rough level at the top, and ascertaining how deep the cutting will be at that place, and giving instructions where to begin at the sides, making sure not to cut-in too deep, or ten to one but the material will be more than sufficient to fill up the embankment. The sloping sides of the cutting will also require some judgment in forming. Hard dry substances, like chalk or stone, are sometimes cut as steep as to show a face at an angle of 60° , while a running sand or wet clay will not stand at more than 25° . The bank is generally expected to be clothed with something or other, Ivy not being at all unsuitable.

But however steep the cutting may be the embankment cannot be made steeper than about one in thirty-five or so, which is about a rise of 2 feet on a base of 3. Loose material will not hold together much steeper than this. Another thing to be considered here is the intended width of the road. A carriage road ought not to be less than 12 feet wide of stones, with at least 3 feet on each side of level sidings; if more, so much the better, the above being taken as the minimum. Moreover, for a road carried along the side of a hill provision must be made for carrying off the water, and a drain along the base of the cut-in side and one in the centre will be found useful. Embankments rarely require draining—i.e., if both sides are above the surrounding ground; but, of course, outlets for all surplus water created by thunderstorms ought to be thought of before the stones are put on.

All curves should be of a bold and agreeable nature, avoiding undue twists and turns. Where the eye can command a distance the curve ought always to be in one direction, unless there be some interruption in the way—as a pond, or tree, or other object, for nothing looks worse than a turning where there seemed no difficulty in making the road straight.—N.

HOPWOOD HALL.

THIS Hall is situated about midway between Heywood and Middleton, being only about two miles from these places, which are on nearly opposite sides of the estate. Hopwood Hall has been the home of the Hopwood family for centuries, and the Hall is one of the oldest in Lancashire. It is a quaint old building, and has many historical associations. Lord Byron, it is said, wrote some of his poems there; but the present owner, Captain Hopwood, has never slept under its roof since he inherited the estate from his father, consequent on some litigation that followed. It, however, has not been neglected, but has been kept in a good state of preservation. Alterations and additions that have been made from time to time are strictly in keeping with the oldest portion of the building. Outside its walls are clad with Ivy and other climbers, while inside they are adorned with

magnificently carved oak. The present Mrs. Hopwood has done much to adorn its walls with her paintings and tapestry.

Hopwood at some time has been a delightful place, but now, to those who reside where vegetation flourishes and grows luxuriantly, it has a dreary appearance. On every side it is surrounded with a forest of tall chimneys that are constantly emitting their deadly vapours. The trees have a blighted, stunted, half-dead appearance, and must in years to come gradually become worse, while to attempt planting young trees is out of the question; it would be labour in vain, for they would not grow. The old *Rhododendron ponticum* seems at home, and flourishes amazingly in spite of the surroundings. The land is beautifully undulated, and if vegetation would but grow the landscape could be made very attractive by judicious planting.

The flower garden is close to the mansion, and the beds were, until Mr. A. Waters took charge of these gardens, were laid out with various coloured stones. These have been cleared away, and a more modern style of bedding adopted. Last season the beds of *Verbenas*, *Petunias*, and other similar plants were gay, but were much dashed with heavy rains. Some scroll beds were left representing the old style, but these are to be turfed, and will effect a very great improvement. At the present they have a crowded appearance.

The conservatory adjoins the mansion, and from the outside is as quaint looking as that structure. It has been so built that it conveys the impression it is falling. Inside the arrangements are graceful and natural. The roof is festooned with climbers, which hang in a natural manner 2 feet or more from the glass. On one side *Lapageria rosea* is conspicuous, and contrasts admirably with *Plumbago capensis*, while *Tacsonias* and other plants are equally effective. The wall on one side is covered with *Camellias*, with *Ferns* at the base dotted amongst stones, also *Begonias* at intervals, *Celosias* and a few other plants dotted amongst them. The front side has a narrow stage, and is full of useful plants with *Camellias*, climbers, *Grasses*, and other plants filling the front of the stage so as to give it a furnished appearance from the floor upwards. The centre is filled with *Camellias*, *Dracænas* of sorts, *Palms*, and other useful plants. Various alterations that have been made by Mr. Waters have much improved the internal arrangements.

Two greenhouses are filled with *Azaleas* and *Heaths* that have seen their best days. The latter are old favourites and must be retained; they are alive and will require some skill and care to keep them so. They present a striking contrast to a few healthy young specimens and the softwooded plants that furnish the side stages. There are a few *Orchids* that look healthy and well, amongst them being some large pans of *Cœlogyne cristata*, and *Gardenias* occupy the opposite side of the house. Another house was nearly filled with *Bouvardias*; *Poinsettias*, *Euphorbias*, *Acalyphas*, and other decorative plants are also well grown. The stove is rather a large lean-to house and contains some good plants of *Crotons*, *Alocasias*, *Ferns*, and other flowering and foliage plants. The most noteworthy plants in this structure are numbers of grand specimens, 4 or 5 feet high, of *Dracæna Youngi*. It is a strong growing variety, and where large *Dracænas* can be used in single vases in rooms it has no equal. It lasts in good condition longer for this purpose, or even in the conservatory, than any other dark-leaved form. The roof of this structure is again furnished with *Allamandas*, *Clerodendron Balfourianum*, *Dipladenias* and other plants. A span-roofed vinery has been turned into a Rose house, and the plants are very promising.

The span-roofed vinery that adjoins the Rose house contained some very fair *Alicante* and *Trebbiano* Grapes; the other Vines in two or three houses will need time and care to restore them to a healthy vigorous condition. The Peach trees look well although some of them are thirty-six years old. The branches have been trained too closely for this neighbourhood in the past, but Mr. Waters is acting wisely in thinning them liberally and may anticipate good results.

Growing vegetables seems a hopeless task, everything is nearly blown out of the garden, and few do really well. It is certainly a most trying neighbourhood for a gardener. Mr. A. Waters, however, has had a long and varied experience in various parts of the country, and the experience gained during his long stay at Norris Green in the neighbourhood of Liverpool may have proved useful to him in a locality ten times worse.—VISITOR.



HARDY FRUIT GARDEN.

RASPBERRIES.—These must now be secured to their supports, in readiness for growth and fruiting. There are many plans for doing this, all of which are successful in proportion to the light and air admitted to the plant, and the assistance which is given to them in other ways. One of the best ways of growing them is to plant in thick rows 10 feet apart, and about 1½ foot between the plants. They will soon spread and form one thick row throughout. On each side of this row, and at a distance of 3 feet from it, put a line of stout posts 12 feet apart and 4 feet high from the ground level. These posts should be of sound wood that will last well in the ground, cut about 3 inches by 4 inches, and

the bottom portion, say for 2 feet, should be dipped in tar or creosote to prevent decay. On the tops of these posts fasten an iron rod the whole length of the row on both sides (half-inch gas piping will do for this purpose), and on this tie the points of the fruiting wood. When in full growth each row of plants will thus have two rows of fruit-bearing canes, and the young growth of the current year can grow up in the centre, and thus get plenty of light and air without covering up the fruiting wood. This arrangement is very convenient for gathering fruit and for protecting from birds.

Another plan is to plant similar rows at 6 feet apart, to place one line of posts down the centre of each row, and to fasten three galvanised wires to these with radisseurs at one end for tightening, the first wire to be 6 inches from the top of the post, the second at 1½ foot, and the third at 2½ feet from the top, the fruiting canes to be tied to these wires at 6 inches apart. This plan can be more conveniently adopted in some places, but is not so good as the first. Much more labour is required in tying, and the young wood grows up close to the sides of the bearing canes. It is, however, much better than the old plans of tying four canes closely around a stake, or of plaiting the canes together and tying them in arches and similar forms.

Raspberries are often grown in fields without any support whatever by cutting the canes down to 2½ or 3 feet in height, but growth under field culture is not so strong as it is in gardens, neither does the fruit attain to so large a size.

Planting should be finished at once. The ground must be trenched and liberally manured for Raspberries, as a plantation if well done at first will last many years. It is impossible to grow them too strongly, and they must have a deep soil, or the fruit fails to swell off to a good size in the summer. A deep rich moist loam is the best soil for them, but they will succeed wherever Strawberries grow to perfection. Cut them down to 4 inches above the ground level as soon as planted, and mulch with some strawy manure to induce root-action as soon as possible. Choose those plants that have plenty of fibrous roots, or the growth this year will be too weak for fruiting next season. Established plantations should never be dug, as the Raspberry roots very near to the surface. All perennial weeds should be removed with the prunings, and if the ground is poor give a good dressing of farmyard manure now, and leave it to be washed in by the rains, aided by an occasional scuffle with a rake in dry weather. The autumn-fruiting varieties should have all their shoots cut off close to the ground, as they fruit on the wood of the current season's growth.

STRAWBERRIES.—Remove all weeds from the beds as soon as weather permits, also leaves which have been destroyed by frost, if the plantation has to be kept clean and neat through proximity to the house or otherwise, but for market plantations dead leaves will do no harm. Do not dig among the plants, as this destroys the surface roots, and cannot possibly do any good, but may seriously injure the coming crop. Any vacancies caused by frost may now be filled up if strong plants are obtainable. Ram them in firmly with a wooden rammer and mulch with short manure. Making new plantations now is not advisable, except in exceptional cases, as they cannot be expected to fruit this season. A crop of early Potatoes, Lettuce, or some similar vegetable should, therefore, be placed on the plot, and planting be deferred until August. Strawberries must have a cool, moist, deep soil to grow them to perfection. They require abundance of water at all times, but especially when ripening their fruit, which time is often the driest and hottest part of the whole year. Any beds that are getting exhausted will be benefited with a good dressing of farmyard manure spread between the rows, and left for the rain to wash into the roots; or a dressing of one part nitrate of soda to five parts superphosphate may be applied a month hence at the rate of a quarter of a pound to the square yard, raking the ground afterwards to facilitate absorption and evenness of distribution.

FRUIT FORCING.

PINES.—To provide plants to give a succession of fruit from next December onwards start some suckers about the beginning of March. Soil for potting these should be had under cover and prepared, a fermenting bed being provided in some close structure to generate and maintain a bottom heat of 85° to 90° near the surface, and with means of maintaining a temperature of 55° to 65° with regularity. Last December selected plants started by an advance of temperature will now be showing fruit, and as it is desirable to forward the ripening of the fruit as much as possible the temperature about them must be maintained at 65° to 70° at night, and 5° to 10° more under favourable conditions in the daytime, opening the house at 80°, allowing an advance to 85°, and close about that degree, utilising the sun heat. As the fruit advances the plants will require more copious supplies of water at the roots, examining the whole stock once a week, giving supplies of weak liquid manure to those in need. Plants that were recently started to succeed those already named should have a night temperature of 65°, and 70° to 75° by day artificially, 5° less on dull days, which will be sufficient for some time longer, ventilating carefully, and not employing too much moisture.

FIGS.—*Earliest Trees in Pots.*—The trees have now a number of fully developed leaves, and the roots are active, having been accelerated by a steady bottom heat of 70° to 75°, and the glass being clean, the leaves evaporate considerably under the influence of full light, necessitating particular attention to the watering, which must now be regular, as dryness at the roots may prove fatal to the fruit setting. Turves may be placed around the rims, or strips of zinc about 4 inches deep may be placed inside the rims of the pots, and

rich compost given as the roots occupy it, not giving it all at once, but little and often, and liquid manure in a weak tepid state always in sufficient quantity to pass through the soil to the drainage. The atmosphere must be kept moist, syringing the plants twice a day when the weather is fine, and damping the surface of the bed, walls, and paths when dull, for having the foliage constantly wet is not favourable to the trees' health. Keep the temperature steady at 60° at night, falling 5° on cold nights, 60° to 65° by day when cold and dull, and 10° to 15° rise with gleams of sun. Admit a little air at 70°, keeping it with sun heat at 75° to 80° through the day, closing sufficiently early to run up to 85° or 90°. Attend to stopping and tying as growth advances, and guard against overcrowding by rubbing off shoots not required. Pot trees should be pinched off at the fifth leaf, and as the branches may not always be thinned without sacrificing fruit advanced in swelling tie such out, putting in the needful stakes. The shoots are easily cut out, if not required, when the fruit is gathered, and it is essential that Figs have full exposure to light and a free circulation of air to have flavour and colour, therefore keep the growths thin and evenly placed.

Early Forced Planted-out Trees.—Trees started with the new year are growing freely, and must be attended to for disbudding and stopping. Where there is trellis room the leading shoots may be allowed to extend to the extremity without stopping, and no more should be laid-in than there is room for receiving full exposure to light, reserving a few growths where there is space, pinching at the fifth leaf. These will give second crop Figs, and may be useful for displacing shoots cut away later, but it is not good practice to encourage spur growths. Mulch the borders to attract the roots to the surface, and supply water freely, with liquid manure in the case of trees requiring support through limited rooting area. A temperature of 55° to 60° at night, 60° to 65° by day artificially, 70° to 75° with a little sun, rising 5° to 10° more in bright weather is suitable.

Late Houses.—Complete the pruning and dressing of the trees, using a brush and soapy water to cleanse them of scale, to which a tablespoonful of petroleum may be added to each gallon, keeping well mixed. Keep the houses as cool as possible, merely excluding frost.

MELONS.—In severe weather a temperature at night of 60° to 65°, and at day of 70° to 75° from fire heat is suitable, but in mild weather 5° more may be allowed, rising to 80° or 90° with sun heat. Ventilate carefully, admitting a little air at 75°, avoiding cold draughts, and close early so as to run it up to 90° with plenty of moisture. The plants that were shifted into 5 or 6-inch pots may now be planted out in the ridges or hillocks for trellis training, firming the soil well about the roots so as to insure short-jointed growth and solid fruits. Train with a clear stem to the trellis, rubbing off the side shoots, but not the leaves, as they show, allowing the leading shoots to advance two-thirds up the trellis before stopping, and rub off every alternate lateral on opposite sides of the principal shoots. The laterals will show fruit at the second joint, if not stop them at two leaves. Water carefully, and at a little distance from the stem, so as to avoid canker. Damp available surfaces in the morning and afternoon, also before dark if the weather necessitate sharp firing, syringing lightly on fine afternoons. Sow for succession, and pot off seedlings, keeping near the glass.

CUCUMBERS.—Those in frames must be well protected at night with mats or other covering, attending to the linings, and being careful to avoid rank steam, having the fermenting materials well sweetened; keep a reserve heap of dung and leaves properly turned for use as required.

Endeavour to maintain steady progress in the plants, with the aid of sun heat, especially by early closing, nothing being gained by undue excitement in dull weather. Stop at one or two joints beyond the show of fruit, keeping the growths thin, and maintain a succession of bearing growths, removing bad leaves and exhausted growths. Damp the floors occasionally with liquid manure, keeping the evaporation troughs filled with it, the moisture invigorating the plants and is detrimental to insects, taking care, however, not to use it too strong.

PLANT HOUSES.

Crotons.—Well-furnished plants that are to be grown to a larger size may be transferred into pots 2 inches larger than those they now occupy. In potting only remove the crocks from the base and loose soil from the surface. Well furnished heads of the larger growing varieties may have pots 8 inches larger than those they are growing in. Plants that have good heads but have become bare at the base may be partially cut through on each side, mossed and supplied with a stake. These if kept moist and with those that are repotted in a temperature of 65° at night will soon be well rooted. Those mossed in early autumn are well rooted and ready for taking off. If these are placed into 5-inch pots and plunged in bottom heat for a fortnight they will not lose a single leaf, and in a short time will be ready for larger pots. If these plants are increased by means of cuttings they may at this season of the year be cut off where the wood is soft, or they will be a long time rooting and often lose their lower foliage. These plants do well in fibry loam three parts, the other portion being composed of decayed manure, leaf mould and sand. A little artificial manure may with advantage be mixed with the soil.

Dracenas.—It is impossible to grow these into good plants if they are confined in small pots until they become stunted and woody. If they are to be developed into healthy, well-furnished specimens, they may be potted directly the soil is moderately well filled with roots. Those placed during September into 5 and 6-inch pots are ready for others 2 inches larger. The pots at first appear too large for the plants, but they will commence rapid growth, and develop into large, well furnished plants in this size. Some of the narrow leaf varieties do not need such large pots, and are generally more useful in 5 and 6-inch size.

Plants that have become bare may have the stems notched and mossed; these soon emit roots, and are in a few months suitable again for table decoration. Plants that have been kept rather dry may have the root portion of the stem cut up for stock. Every portion will make a plant if inserted in sandy soil and started in brisk heat. These plants, if well looked after, are amongst the easiest of foliage plants to grow, and amongst the most useful for decorative purposes. The heads of *D. gracilis* and *D. Goldiana* root freely if cut off where the wood is moderately soft, and the pots plunged in brisk heat.

Pandanus Veitchii.—Repot small plants in a mixture of loam, sand, and one-seventh of manure. These are useful in various sizes up to 10-inch size. When plants are well developed all the suckers are removed for stock, and the specimens are employed for decoration until they are of no further use. When once a stock is obtained there is no difficulty in growing on young plants as rapidly as others are destroyed. For rooms, or even the dinner table, these plants look well rising from a base of *Selaginellas* and small Ferns. When giving the final potting a few may be placed on the surface. By the time the plants are ready for use the base will be well furnished.

Ixoras.—Large plants, or those of moderate size, may be cut into shape and thoroughly cleaned. These may then be plunged in bottom heat and started into growth. By cutting the plants back the whole of the shoots start into growth about the same time, and a regular head of bloom is obtained. When the plants have started into growth any potting that is needed should be done. The old ball must not be disturbed, and the plants may be potted in peat and sand with a little charcoal added. Considerable care is needed in watering and syringing. Any young shoots of moderately soft wood can be inserted singly in small pots and rooted in brisk heat in the propagating frame. These can be allowed to grow and flower in 4-inch pots. If needed for bushes the point must be removed when the cuttings are well rooted. Those inserted in autumn and have been wintered in 2½-inch pots may be stopped and placed into 5-inch pots. It is a good plan to stop some and allow the others to grow on without, so that they will form a succession.

Rondeletias.—These are difficult to grow into good specimens, yet with care and good treatment this can be accomplished. They yield flowers freely, which are very serviceable for cutting, and should be grown much more largely than they are. The plants are slow in a young state, and much headway cannot be made in a solitary season. Cuttings of soft wood root freely in sandy soil under bellglasses in brisk heat. This plant may be grown into bushes or small standards; for the latter the young plants, after they are rooted, must be supplied with a stake and allowed to extend until the necessary length of stem has been produced, when the point should be removed to induce it to branch. For bushes the young plants may be stopped when they have made a few inches of growth. Pinching is necessary until the plants have formed good bushes, when the shoots may be allowed to extend and ripen thoroughly, when every one will produce a truss of bright scarlet flowers. To grow these plants well they may be grown with *Ixoras*, and if given bottom heat they extend much more rapidly during the early stages of their growth. *Rondeletias*, of which *R. speciosa* major is the best, are not strong-rooting plants, and do well if potted the same as *Ixoras*, and in similar compost. We have been successful with them when one-third of sandy loam has been incorporated with the peat. These plants are much subject to thrips, and need careful watering. When bushes or standards have been formed they can be kept shapely by a judicious system of cutting back the shoots after flowering.

Francisceas.—Introduce into brisk heat a few of these plants in succession as they are required in bloom. When they have flowered cut back the shoots and start them into growth, repotting those that need more root room. They succeed in a compost of peat, loam, and sand, and when the plants are growing freely an intermediate temperature is suitable.



APIARIAN NOTES.

THE WEATHER.

FROM February 8th up till and including February 12th the weather was settled with a night temperature of 40° and a day temperature from 40° to 50°, the last lasting only for a short time. The sun shone nearly the whole day on the 8th, which followed a heavy rain on the 7th. The rest of the days have been calm but dull. With regard to prospective weather, for very good reasons it is difficult to say much; I could, however, name many fine Februaries followed by inclement summers. For many years I have observed annual occurrences of north-west storms of more or less severity between the middle of January and the end of February which commonly lasts for three days. These three days' gales occurred this year early in January as usual, and accompanied with snow or hail.

THE APIARY.

Spring flowers are later this year, but I observe some so far advanced that they may be expected to bloom in March instead of

April. Pollen was carried in by the bees on February 10th, and on February 12th the Punic were extra busy for a short time while the sun shone, and many were carrying pollen, apparently from the Alders at a considerable distance from the apiary. Young bees are numerous at all stocks. Amongst the articles written upon the Punic bees, there is one that cannot be allowed to pass. It reads:—"They are also active, energetic workers, but, unlike Cyprians and Syrians, they are liable at times to fly at one and sting him when he approaches the apiary, and yet does not molest the hives." These words are said to be Frank Benton's.

LOCALITY.

This appears to be greater in some varieties of bees than in others. The Carniolians stand highest in this respect, but from what cause I cannot at present explain. One of my Punic stocks shows a decided contrast to the Carniolians in this respect; they do not, like them, return unerringly to their own hive, but fly in numbers to another empty one, and of a different form and colour from their own hive, and at a distance of 6 feet, too. I shall have something more to say about these bees at another time when I have had more experience of their doings during the spring months.

EXTRACTING AND MARKETING HONEY.

The bee-keeper is the best judge whether comb honey or extracted is the most remunerative. Clover honey in comb is often unsalable, but fine samples of Heather honeycomb have hitherto commanded a good price, and is likely to do so for some time to come, if not for all time coming. I have hitherto made it a practice not to offer honey extracted from brood combs for sale, taking nothing but what was extracted from surplus chambers. It requires about 3d. more per lb. for comb honey than for strained honey when we take a commercial view of it, so that, if we except Heather honeycomb, it is most remunerative to sell other kinds extracted.

In order to increase the supply of Heather honeycomb sealed supers, and nothing but sealed ones, should be extracted. The combs should be returned to the bees to be cleaned, then removed and well cared for. Empty supers may be given to the bees when sent to the Heather; then when honey is coming in plentifully, but not till then, the combed supers should be given them, depending upon circumstances whether they should be above the tenanted super or next to the crown of the hive. The bee-keeper must also judge whether it be not the wisest course to remove the empty super and make the combed ones take it or their place.

Amongst other ideas being adapted is the narrow under bar of the frame, or none at all, as in our supers. Certainly the super with no under rail are most readily entered by the bees, and better adapted for extracting, is therefore more expedient and profitable.

—A LANARKSHIRE BEE-KEEPER.



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post and we do not undertake to return rejected communications.

Forming a Carriage Drive (R. S. O.).—The information you require upon this subject will be found in an article on page 133 of the present issue.

Puzzle Gardens (C. B.).—Your letter is so extremely vague that we cannot give you a reply. Write again, and give full particulars of your requirements.

Compost for Vegetables in Frames (W. J. W.).—You could not have a better compost for vegetables than that given by Mr. Dunkin for softwooded plants, to which you allude, and it may be modified according to requirements.

Vegetables for Exhibition in November (X. Y. Z.).—1, Peas, French Beans, Cauliflowers, Seakale, Tomatoes, Cucumbers, Celery, and Mushrooms. 2, Cauliflowers, Brussels Sprouts, Savoys, Beet Turnips, Carrots, Celery, and Potatoes.

Low Trolley for Moving Trees (A. J. A.).—We do not know where you can procure the trolley required, as they are made to order by wheelwrights, who would soon make one if you state your requirements. Indeed, most estate carpenters would manage the task in a short time, the chief thing being to have broad wheels and plenty of body strength. Consult the nearest wheelwright.

The Common Guava (New Subscriber).—The fruits you have received are those of the common Guava (fig. 20), botanically known as



FIG. 20.—PSIDIUM PYRIFERUM.

Psidium pyrifera, a tree 10 to 20 feet high, producing fruit of a pear shape and grown extensively in the West Indies; and this is also known as the white Guava, in contradistinction to the fruit of *P. pomiferum* or red Guava, which has a red flesh, very acid, and much inferior to the white. The common or white Guava is about as large as a tennis ball, the rind of a russet colour, tinged with red. The pulp is sweet, aromatic, of an agreeable flavour, and interspersed with numerous small white seeds. The fruit is very extensively eaten in the West Indies, both by the natives and by the Europeans, either raw or in the state of jelly; but it possesses great astringency, and is not suited to those of costive habits. The rind, when stewed, is eaten with milk, and is preferred to any other stewed fruit. From the same part marmalade is made; and the whole fruit, prepared with sugar, furnishes the celebrated Guava jelly. The buds of Guava, boiled with barley and liquorice, produce an excellent drink for diarrhoeas, and even dysentery, when not too inveterate. The wood furnishes excellent fuel, burns with a bright heat, and lasts a long time. The fruit of *P. Cattleianum* is about the size of a small Walnut, nearly round, of a deep purple colour. The skin is of the consistence of that of a Fig, but is thinner. The interior is a soft, fleshy pulp, purplish-red next the skin, but becoming paler towards the middle, and at the centre it is quite white. It is juicy, and, in consistence, is much like a Strawberry, which it resembles in flavour. This is one of the best of the Guavas, and is a native of China, whence it has been introduced to Brazil, and now it is grown extensively in both countries.

Partnership in a Nursery Business (H. L. B.).—We cannot suggest any other method than advertising, and if you state your requirements clearly you will receive plenty of applications. It will not be difficult then for you to ascertain the *bona fides* of those desirous of obtaining the use of your capital. Some of the wholesale seed firms could possibly assist you with information on that point, or Messrs. Protheroe & Morris could be applied to.

Grapes with Thick Skins (J. M.).—A tough skin is a criterion of good Grapes and one of the best safeguards against disease; but the defect is manifestly not in the skin, for that is red—the berries are shanked and the juice is sour. Though the Grapes were a good colour last year they simply shanked later, hence the hard, tough skin, and uneatable flesh. There is no remedy but lifting the Vines and planting in a properly prepared border, the present one being too heavy and too rich for the formation of roots, and also too cold and wet.

Liming Potato Ground (J. H.).—A dressing of lime would, no doubt, be an advantage and enable you to do without manure for a year, provided the soil is in good condition, for lime does not supply the place of manure, though often more advantageous through its rendering inert matter available. For Potatoes, the lime should be applied during dry weather in March, placing it fresh from the kiln in small heaps convenient for spreading, covering with soil. When fallen and whilst hot, or at least in powder, spread it evenly on the ground, and the working in will be effected by preparing the land for the Potato. For corn (you do not state what kind of cereal) the lime should be applied some little time in advance of sowing, say in September for Wheat and in February or as soon as the weather is favourable for Oats and Barley, as it is important that the weather be dry, applying it as advised for Potatoes. Harrowing in, or not more than ordinary ploughing, will mix the lime sufficiently with the soil and bury it deep enough. Three tons per acre are sometimes applied, and is a very moderate dressing, six tons being an average application, as most soils are too poor to bear more in ordinary husbandry from the meagre and distant manurial dressings. Ten tons per acre is a full and proper application for strong loam, especially to soils rich in humus that have not been limed for many years.

Culture of Browallia elata (M. W.).—You will find the plant a useful one if you follow the instructions here given, as it may be had in flower all the year by sowing a pinch of seed in February and again early in August; but it is as a winter and spring-flowering plant that it is most deserving of culture. The blue Phlox-like flowers, which proceed freely from the tops of the side shoots, contrast effectively when associated with flowering plants of light and bright shades of colour. A stock of this beautiful and very easily managed plant can readily be raised from seed sown in 4-inch pots previously crocked and filled to the rim with a light compost consisting of three parts of sandy loam and one of leaf mould. Cover the seeds lightly with some fine soil, then put the pots in heat and cover them with a square or two of glass and a little moss, which must be removed as soon as the seedlings appear through the soil. From this time the seedlings should be gradually inured to light and air to prevent them from making a weakly growth, and with this object in view the plants should be grown on shelves near the glass. A board resting on a few flower pots on bricks in an early Melon or Cucumber frame would be a most suitable place in which to grow the plants in their earlier stages, protecting them from the ravages of slugs by dusting a mixture of fresh soot and quicklime along the board on each side of the plants. Three plants in a pot will be sufficient, and the superfluous ones should be pulled out before they become crowded, and be transplanted in 4-inch pots if necessary to increase the number of plants. The latter should have a small stick about 18 inches long put to each plant for support, and be kept well supplied with water at the roots, and damped overhead with tepid water on bright mornings and afternoons, as much with a view to promoting a healthy growth in the plants as to prevent the attacks of red spider. If larger plants are desired a portion of the stock should be shifted into 6 or 8-inch pots; and those in the 4-inch pots should be top-dressed with a mixture of pulverised horse droppings and loam when the plants attain a height of 10 or 12 inches. This will enable them to develop finer heads of flower than would otherwise be secured.

Names of Fruits (R. J. H.).—The Apple is Scarlet Nonpareil, the Pear is not recognisable.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (F. H.).—Your "Chinese Sacred Lily" is, no doubt, one of the Polyanthus Narcissus, and the cause of the buds decaying is the excessive moisture. Place some soil about the bulbs, and give them a drier, warmer position. (J. M. B.).—1, Begonia maculata; 2, Pteris umbrosa; 3, Insufficient without flowers; 4, Selaginella lepidophylla; 5, Apparently a small frond of Thamnopteris nidus; 6, Cyrtomium falcatum. (F. J.).—Both specimens are very unsatisfactory fragments, and we can only suggest that you send better examples if you wish to have the names. (I. N.).—The seeds are unrecognisable in the absence of any particulars.

TRADE CATALOGUES RECEIVED.

John Watkins, Pomona Farm, Withington, near Hereford.—*Catalogue of Seed Potatoes.*

W. T. Falconer Manufacturing Co., Jamestown, New York.—*Catalogue of Bee Hives, Sections, &c.*

J. Carter & Co., 237 and 238, High Holborn.—*Catalogue of Tested Grass and Farm Seeds.*

Alex. Dickson & Sons, Newtownards, Co. Down, Ireland.—*Catalogue of Fruit Trees, Conifers, and Roses.*

Thomas Knight, Ashton-under-Lync.—*Catalogue of Garden and Flower Seeds.*

COVENT GARDEN MARKET.—FEBRUARY 17TH.

MARKET still quiet, with supplies generally shorter.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½-sieve	1	0	to	4	0	Grapes, per lb.	1	6	to	3	0
Apples, Canada and Nova Scotia, per barrel	12	0	25	0	Lemons, case	15	0	2	0		
Cobs, Kent, per 100 lbs. ..	0	0	40	0	Oranges, per 100	4	0	9	0		
					St. Michael Pines, each ..	3	0	6	0		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	4	to	0	6	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bunch	0	3	0	5	
Carrots, bunch	0	4	0	0	0	Parsley, dozen bunches	2	0	3	0	
Cauliflowers, dozen	2	0	3	0	0	Parsnips, dozen	1	0	0	0	
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	2	0	3	0	
Coleworts, dozen bunches	2	0	4	0	0	Salsafy, bundle	1	0	1	6	
Cucumbers, dozen	2	0	3	6	0	Scorzoneria, bundle	1	6	0	0	
Endive, dozen	1	3	1	6	0	Seakale, per basket	1	6	1	9	
Herbs, bunch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	
Leeks, bunch	0	2	0	0	0	Spinach, bushel	2	0	0	0	
Lettuce, score	0	9	1	0	0	Tomatoes, per lb.	0	4	0	6	
Mushrooms, punnet	1	6	2	0	0	Turnips, bunch	0	0	0	4	

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	4	0	to	6	0	Maidenhair Fern, dozen bunches	4	0	to 9 0
Azalea, dozen sprays	1	0		1	6	Mignonette, 12 bunches ..	1	6	3 0
Bouvardias, bunch	0	6		1	0	Mimosa or Acacia (French) per bunch	1	6	2 0
Carnations, 12 blooms ..	2	0		3	0	Narciss (French) dozen bunches	2	6	6 0
Christmas Roses, dozen blooms	1	0		1	6	Pelargoniums, 12 bunches ..	9	0	15 0
Chrysanthemums, dozen blooms	0	9		3	0	„ scarlet, 12 bunches ..	6	0	9 0
Chrysanthemums, dozen bunches	4	0	12	0	0	Poinsettia, dozen blooms..	4	0	9 0
Cyclamen, dozen blooms ..	0	3		0	6	Primula (double) 12 sprays	0	6	0 9
Eucharis, dozen	4	0		6	0	Roses (indoor), dozen ..	1	6	3 0
Euphorbia jacinthiflora dozen sprays	3	0		6	0	„ Red, per doz. blooms..	1	6	2 0
Epiphyllum, dozen blooms ..	0	6		0	9	„ Tea, white, dozen ..	1	0	3 0
Freesia, dozen sprays	4	0		6	0	„ Yellow, dozen	2	6	3 0
Gardenias, per dozen	4	0		8	0	Tuberose, 12 blooms.. ..	1	0	1 6
Hyacinths, dozen spikes ..	4	0		6	0	Tulips, dozen blooms.. ..	1	0	2 0
Hyacinths (Roman) dozen sprays.. .. .	0	6		0	9	White Lilac (French) per bunch.. .. .	5	6	6 6
Lilium longiflorum 12 blooms	6	0		9	0	Violet Parme, French behs.	3	0	4 6
Lilium (var.) dozen blooms ..	2	0		4	0	„ Czar	1	6	2 0
Lily of the Valley 12 sprays	0	10		1	0	„ „ small bunches ..	2	0	2 6
Marguerites, 12 bunches ..	3	0		4	0	„ English, dozen bunches	1	6	2 0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Ficus elastica, each	1	6	to	7	0
Azalea, per plant	2	6	3	6	Foliage plants, var., each	2	0	10	0		
Cyclamen, per dozen	12	0	15	0	Hyacinths, per dozen	6	0	9	0		
Dracæna terminalis, dozen	4	0	42	0	Lily of the Valley, per pot	1	3	2	0		
" viridis, dozen	12	0	24	0	Marguerite Daisy, dozen	6	0	9	0		
Epiphyllum, per pot	1	6	2	6	Myrtles, dozen	6	0	9	0		
Erica gracilis, per dozen	9	0	12	0	Palms, in var., each	1	0	21	0		
" hyemalis, dozen	12	0	18	0	Pelargoniums, scarlet, doz.	4	0	6	0		
Euonymus, var., dozen	6	0	18	0	Poinsettias, per dozen	9	0	15	0		
Evergreens, in var., dozen	6	0	24	0	Solanum, per dozen	9	0	12	0		
Ferns, in variety, dozen	4	0	18	0	Tulips, dozen pots	7	0	9	0		



AGRICULTURE IN 1891.

THE complete agricultural returns issued in the first week of this month possess more than ordinary interest, as showing certain important changes in the agricultural situation to which it is desirable to call attention. Whether or not the changes may be generally regarded as progressive is doubtful, but it cannot be denied that they certainly betoken recognition by tillers of the land that the days of high prices for corn are gone never to return. Profitable corn-growing is known to be still possible in this country under conditions unknown to farmers twenty years ago. Then corn was so dear that plenty of labourers and horses could be employed profitably; now it is so cheap that the area of

land under it has to be restricted sufficiently to enable farmers to manage with fewer horses and fewer labourers. Can anything possibly be plainer than this? All doubt about the matter is set at rest by the returns, which show an increase of 4,000,000 acres in the permanent pasture of Great Britain.

This diminished cultivation of corn includes Barley, Oats, Peas, and Beans as well as Wheat; or, in other words, a very considerable reduction in the production of home-grown corn for feeding stuffs, which has led to a proportionate increase of imported food for live stock. Well is it to notice in connection with this fact that the increased area of permanent pasture has not led to such an increase in live stock as to at all compensate for the falling-off in corn produce. Here are the exact figures:—

	1871.	1891.	Increase.
Horses	1,254,000	1,488,000	234,000
Cattle	5,338,000	6,853,000	1,515,000
Sheep	27,120,000	28,733,000	1,613,000
Pigs	2,500,000	2,889,000	389,000

No doubt foreign competition has kept down the number of cattle, sheep, and pigs. It has been notorious for the last twelve months that pig keeping has been most unprofitable. We have heard of pork being sold in provincial markets for 3d. and 3½d. per lb.; yet really good well cured bacon cannot be had at well-known provision shops of repute in the City of London under prices ranging from 7½d. to 11d. per lb., the latter price being for choice cuts of streaky bacon. Meanwhile foreign meat finds its way into our market in steadily increasing quantities. New store-houses are being built for meat from the Antipodes, one of which, situated on the south side of the Thames, and capable of holding 350,000 carcasses of sheep, will be opened shortly. That number is noteworthy, as being sufficient for a week's meat supply for the whole of London. The price at which really good imported mutton and beef can be sold in London and other large centres must seriously affect the home trade. At the stores under Cannon Street Station the prices recently ruling for the best Australian or New Zealand beef and mutton were 3d. to 3½d. per lb. per quarter or per sheep. The weekly sales amount to about 30,000 sheep, and we are assured that no better can be found than the choice consignments either from New Zealand or Queensland. The carcasses are carefully enclosed in thin cotton sacks, and the flavour has none of the taint or insipidity of the flesh of stall-fed cattle. Pure air, pure food, and water are as necessary to growing good meat abroad as at home, and the new frozen meat trade has improved by leaps and bounds the quality of the consignments to this country from the antipodeans.

We hope an explanation of the use of the increasing area of permanent pasture is to be found in the more general attention to dairy farming; if only that is so, increasing prosperity is still possible in agriculture. Expressions of wonder are common enough about the long distance from which farmers find it worth while to send milk to London. It is more than probable that the vastness of our huge metropolis is not generally realised; here are a few facts recently published illustrative of it. It has about 5,000,000 of inhabitants, who increase by more than 50,000 a year. It has about 700,000 buildings, covering an area of 700 square miles, with very nearly 3000 miles of streets. Its annual consumption of meat is almost appalling in its magnitude, being no less than 4,000,000 of sheep, 9,000,000 of poultry and game, and 800,000 oxen. Butter, milk, fruit, and vegetables are required in an equal ratio, both the latter being used in constantly increasing quantities. This is a want to which we have a significant response in the returns which show an increase of the area under small fruit in Great Britain from 36,700 acres in 1888, to 58,700 acres in 1891. Of this latter acreage 23,416 acres are included in the 209,996 acres of orchards, representing small fruit grown under standard trees, while 22,510 acres are in market gardens. Orchards have increased by 25,000 acres during the last ten years; market gardens also have increased by nearly 35,000 acres, or from 46,604 acres to 81,368 acres in the same period of time; yet the

wisdom of our efforts to induce a still greater extension of both dairy and fruit farming is often questioned, and therefore it is well occasionally to have recourse to figures which tend to "prove our facts," and to justify such modifications of farm management as are likely to meet modern requirements. We commend the statistics given here to the thoughtful attention of our readers. They are signs of the times which cannot be ignored, and which, rightly regarded, are beacons for our guidance.

WORK ON THE HOME FARM.

So far the weather has been favourable to field work, and the month may prove a fairly dry one as it did last year. February fill-dyke has long been proverbial, and farmers do well to remember that in the present month and October there is generally a heavy rainfall. Ploughs are still busy in several counties through which business has taken us recently, and we observe the soil turns up wet and heavy. Much faith must farmers have in March winds and April showers, who thus put off ploughing till the approach of seed time. On heavy land farms late ploughing involves much risk of late sowing. The common mistake is to regard ploughing as a thing to be turned to at leisure, and not as requiring a special effort to get it all done as early as possible in autumn. Saturated as much of the land was with wet after last harvest the action of frost in it was more than usually apparent, the expansion of the water as it became frozen causing all ploughed land to open out freely, especially that which was thrown up in ridges. Fields so treated are now a pleasant sight, the ridges are crumbling, the soil is certain to dry quickly with a few days of wind and sun, and a deep fine seed-bed is a certainty.

In a recent lecture in a heavy land district our advice to apply a spring dressing of salt to the land was questioned by a farmer who said he had done so to a field of blue clay some years ago, and it had been wet and cold ever since. We were bound to tell him that the wet and cold condition, which he attributed to salting, was in a great measure owing to imperfect drainage and a want of mechanical division. We were able also to tell him that we had seen a neighbour of his ploughing in coal ashes, and advised him to do so too. How slowly old beliefs and prejudices are shaken off.

All new drains and any repairs to old drains should have been finished ere now, and no time should be lost in the completion of such work. Gladly have we seen more attention than usual given to ditch scouring this winter, knowing as we do how important it is to keep open all waterways and drain outlets. Faulty drainage is as unpardonable as foolish, full crops being impossible, however highly we may manure, till water passes freely by filtration through the soil into the drains, and is carried off quickly by them.

BARLEY CULTIVATION.—The annual competition for prizes value fifty guineas, given by Messrs. Fison of Ipswich for the best samples of Barley, was decided last week. A large number of samples were exhibited, and over three hours were occupied by the Judges in deciding the merits of the different lots. The first prize, £20, was awarded to Mr. A. Pulham, Brandeston, Wickham Market, for a fine parcel of Webbs' Golden Grain Barley, whilst the second prize, £15, went to Mr. W. Pepper of Covehithe, Wangford, who exhibited an almost equally fine sample of Webbs' Kinver Chevalier Barley, other prizes went to the same variety. That Messrs. Webbs' strains of Barley are greatly in advance of all other kinds is a fact that must be patent to all who are interested in the cultivation of Barley for malting purposes. Their list of successes is a long one indeed, and includes the most coveted honours, including the champion cup open to the world for the fifth year in succession.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun	On Grass.	
1892. February.		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	7	29.961	48.6	48.0	N.E.	39.9	53.0	41.3	57.9	39.4	0.036
Monday ..	8	29.748	46.1	45.1	S.W.	41.1	51.1	44.0	86.1	38.0	0.077
Tuesday ..	9	30.324	41.9	40.3	E.	41.0	48.3	40.0	53.4	35.9	0.024
Wednesday	10	30.348	48.0	46.8	N.	41.6	49.1	41.3	53.4	40.4	—
Thursday ..	11	30.464	44.5	41.9	N.W.	41.9	50.1	42.3	61.0	40.4	—
Friday ..	12	30.494	36.1	36.0	N.W.	4.3	44.6	32.1	53.6	25.7	—
Saturday ..	13	30.536	38.6	35.8	N.W.	40.4	43.1	35.9	71.0	28.9	—
		30.268	43.4	40.2		40.9	48.5	39.6	62.3	35.5	0.137

REMARKS

- 7th.—Rain early, cloudy day, bright evening and night.
8th.—Wet from 7 A.M. to 11.30 A.M., then alternate bright sun, and slight showers till 2 P.M., when heavy rain fell, and it continued cloudy.
9th.—Dull and damp early; high fog from 8.50 to 10.20 A.M., then cloudy till 3.30 P.M., followed by frequent slight drizzle; rain from 9 P.M. to midnight.
10th.—Overcast throughout.
11th.—Overcast morning, sunshiny afternoon, bright evening.
12th.—Overcast morning, fine afternoon, bright evening and night.
13th.—Brilliant morning, cloudy afternoon, bright night.

An almost April like week, with high barometer.—G. J. SYMONS.



SUCCESS in the cultivation of plants in pots cannot be secured by the most assiduous attention to any particular operation unless their needful requirements in all other respects are equally well attended to. Not a few individuals connected with horticulture in some form seem to be possessed with the idea that, provided a plant is given suitable soil, the manner in which it is potted is of comparatively little consequence. A more erroneous impression could hardly be conceived, and a little practical observation would soon show that two plants potted in exactly the same soil and given the same treatment in other respects could be greatly varied in character by the manner in which the potting was performed.

The three principal points to be considered are—the kind of roots the plants to be potted produce, the object for which they are grown, and the condition they are in at the time the operation is performed. As a rule all plants which produce small, fibry, and wiry looking roots should be potted very firmly. All classes of hardwooded plants of course come under this definition, and the nearer the roots of any class of plants approach in character to those of Heaths and Azaleas the firmer should they be potted, while Anthuriums and Alocasias are among those which require the loosest kind of potting. But between the very firm potting necessary for Heaths and the opposite extreme which is beneficial for Alocasias there are many degrees of firmness specially adapted for various classes of plants. It might be argued that firm potting in all cases has a tendency to encourage the formation of fibry roots, and a corresponding firmness and solidity in the top growth made; true, but it is not in all cases that these types of growth are desirable. Take for example such plants as some Anthuriums or Caladiums; the larger and stronger the leaves the better, as they represent a bold type of vegetation grown for the beauty of the foliage alone.

The same remark applies in a limited degree to many of the coarser kinds of Palms. If I wanted to grow a Kentia or a Latania to the largest possible size in a given time regardless of the size of the pot, I should pot rather loosely, and should thus secure more rapid and less compact growth, characteristics which would in reality enhance the beauty of these types of Palms. Another matter has, however, generally to be considered—viz., that as these plants are principally grown for decorative purposes it is necessary to have large plants in comparatively small pots. It therefore becomes necessary to pot more firmly in order to store as much food as possible into a limited space. In doing this we check rapidity of growth, but secure the object in view by the time the soil is thoroughly permeated with roots; then, with the aid of artificial manures, such plants can be kept in the same sized pots for years.

These remarks apply with equal force to the green-leaved Dracænas, which can be grown very quickly; but in dealing with the coloured leaved varieties another point has to be considered—that is, if we grow these very rapidly and pot loosely they fail to colour well. Firm potting is therefore absolutely necessary in this case. I think enough has now been written to show the principles upon which we ought to conduct our potting opera-

tions when dealing with plants grown solely for the beauty of their foliage.

In potting plants specially cultivated for the beauty of the flowers they produce it is in the majority of instances necessary to pot firmly in order to produce short-jointed growth, because the shorter jointed the growth, provided it also has the necessary strength, the greater will be the quantity of flowers produced. A few exceptions to this rule are Primulas, Cyclamen, Eucharis, and Gesneras, which I have found to succeed better with comparatively loose potting.

Having now shown according to my own experience the effect various methods of potting have on different classes of plants, we have to consider the condition the plants are in at the time of potting and the best course to adopt under various circumstances. When potting plants which showed a tendency to become unduly strong I have always made a point of potting them extra firm, and have generally found that strong plants potted very firmly invariably produce the best results, but when not given this special attention vigorous growth without a corresponding degree of floriferousness is the usual but not desirable result. On the other hand, any that have not made satisfactory progress, but are either weak or sickly, or perhaps both, if given small shifts and rather loose potting, are quickly started on the right road to health and vigour. Firm potting or planting in connection with things of the vegetable world seems to me to have a similar effect upon them that exercise has on human individuals. So long as either is in a healthy and robust state, the one is benefited by abundance of physical exercise, and the other by firm potting. When either is out of health or inclined to weakness rest must in the one case be resorted to, in the other less firm potting.

In passing to the more practical part of this subject, I will first deal with those plants which are pruned annually, or occasionally, such as Pelargoniums, Marguerites, Fuchsias, and Allamandas. The best time to repot, in these and similar cases, is when the buds have burst and are just beginning to develop into leaves. When dealing with the first two named the loose soil should be shaken away and the roots cut back to the old ball. This cutting of the roots with a sharp knife is important, as when so treated fresh roots are quickly formed on either side of the shortened roots, and there are none left in positions where they are likely to get damaged as the work of potting proceeds. Plants that are shaken out in this way must have the soil about their roots in a dry state before they can be operated upon in a satisfactory way, but before being repotted the roots retained should be thoroughly moistened. This is best done by immersing them in tepid water for a few minutes and then allowing them to drain, after which they are ready for potting, using pots a size smaller than those they previously occupied, the soil being pressed firmly about the roots with a blunt stick, generally termed by the denizens of the potting shed a "rammer." Plants of this description will require a liberal shift as soon as young roots have reached the sides of the pots. Such plants as Fuchsias and Allamandas are better shifted at once into the pots they are to occupy the entire season.

Intimately, and indeed necessarily, associated with the work of potting plants is that of watering them afterwards. The effects of the best of soil and methods in using it may be nullified by an error in watering. In transferring plants to larger pots it is a matter of paramount importance that the mass of soil in which the roots are established is not in the least dry, neither must it be excessively wet; and the soil to be used must be moist also, but only moist enough for free compression. These conditions provided, an occasional skiff with the syringe and shading, the pots, if not the plants, will prevent the evaporation of moisture, and root action will be much more satisfactory than if the soil were made too wet, as is not infrequently the

case, by too free applications of water to the soil too soon after the potting is completed. The subject will be resumed.—H. DUNKIN.

NOTES ON APPLES.

ROUGE DE STETTIN, syn. "RED BIETIGHEIMER?"—This Apple, which in the catalogue of fruits of the Royal Horticultural Society of 1842 is given a synonym of the Rostocker; by Robert Hogg in the "British Pomology" of 1851 as a synonym of Rostocker, Bödickeheimer and other synonyms; by André Leroy as identical with Rostocker, Rother Bietigheimer, Bödickeheimer and other synonyms; by Simon Louis as a synonym of Rother Bietigheimer Rostocker and fourteen other synonyms appears now to be introduced as the "Red Bietigheimer" without any history or the synonyms.

The "Rostocker," "Rouge de Stettin," "Red Bietigheimer" is said by André Leroy to have been known in Germany under the name of Vineuse Rouge in 1598, and by another German pomologist under the name of Rouge de Stettin in 1776, but it was not known to French pomologists until exhibited in Paris in 1867. He classes it as a popular and well known German orchard Apple. In the "British Pomology," Robert Hogg, 1851, the "Rostocker" is described as "a favourite German Apple of first-rate quality for culinary purposes very much resembling our Norfolk Beefing."

In the "Guide Pratique" of Simon Louis the "Rouge de Stettin," "Rostocker," "Red Bietigheimer," is described as a second-class market fruit. The Royal Horticultural Society's Catalogue of 1842 the "Rostocker" syn. "Stetting Rouge" is described as resembling "Norfolk Beefing," and a kitchen Apple of first-rate quality. The Rother Bietigheimer is not classed as a synonym, but as a kitchen Apple of good quality from November to February.

The "Rostocker" has been known in this nursery for more than forty years, but it has never been considered as more worthy than other English Apples. As the "Red Bietigheimer" appears to be reintroduced, with a very good character and without synonyms, it is as well that the history of the sort should be known; it is hardly likely that the "Rostocker" or "Red Bietigheimer" would have been overlooked in England during the long period that it has been grown. At all events the name under which it has been known should accompany the name selected for its resuscitation in this country.

REINETTE BAUMANN.

"André Leroy," a large fruit of second class quality; dry, slightly perfumed, sweet. "Jan. Mars. *Le Verger*," edited by M. Mas. Beginning and duration of winter; flesh firm, sugary, perfumed; of excellent quality.

"The Apple and its varieties," Robert Hogg, 1851. A small dessert Apple of second-rate quality; oblate shape; colour red; in use from December to March; not apt to shrivel. Is this Apple worth adding to our numerous varieties?

WEALTHY.

"Fruits and Fruit Trees of America." A. J. Downing, 1869. "A new variety, originated by Peter M. Gideon, 1860. Fruit, medium oblate or roundish oblate. Flesh, white stained with red; tender, juicy, lively vinous subacid; very good. December, February." In the same work the flavour of the fruit of the "Kentish" Pippin, syn. Vaun's Pippin, is described in nearly the same terms, and is applied to hundreds of other varieties.

COOKING TESTS.

Perhaps the following experience on cooking Apples of the varieties, and on the dates named, may not be unacceptable:—

Jan. 7th, 1890.—*Annie Elizabeth*, a tasteless, and insipid cooking Apple.

Jan. 13th.—*Betty Geeson*, flat, very little juice.

Jan. 21st.—*Bramley's Seedling*, a very good cooking Apple, pleasantly acid.

Feb. 7th.—*Belle de Pontoise*, a very good cooking Apple indeed.

Feb. 14th.—*Calville Blanche*, an excellent cooking Apple.

March 1st.—*Wadhurst Pippin*, a very good cooking Apple.

March 7th.—*Rhode Island Greening*, a good but flat cooking Apple.

March 24th.—*Gooseberry Apple*, very good indeed.

March 30th.—*Dumelow's Seedling*, very good indeed.

April 7th.—*Calville St. Sauveur*, very good.

April 19th.—*Bramley's Seedling*, still good.

May 7th.—*Striped Beefing*, very good.

Jan. 9th, 1892.—*Hollandbury*, a pleasant cooking Apple, very sweet, but not much flavour.

Jan. 13th.—*Flower of Herts*, a very good cooking Apple, subacid; pulp does not diminish in cooking.—T. FRANCIS RIVERS.

HERBACEOUS PLANT BORDERS.

MANY of the occupants of these require to be taken up, divided, and replanted in good fresh soil every third or fourth year, or they fail to grow and flower strongly. When left undisturbed they soon exhaust the soil for a good distance around them, and during dry seasons especially are most disappointing. Breaking up or dividing the old stools is also advisable, in order to reduce the number of shoots that the stronger growers are apt to form; quality, not quantity, being, or ought to be, the principal consideration. Phloxes, Sunflowers, Spiræas, Heleniums, Pyrethrums, and Delphiniums are among the first to need dividing and replanting, and a considerable number of other dwarfed growers would also be greatly improved by the process.

A dry mild time during February is perhaps the best period of year for re-arranging herbaceous borders, as all are commencing to grow, while the bulbous section will also be showing well through the soil. The latter class, including Daffodils, may safely be lifted, and carefully, but not severely, divided now, and being at once replanted at the same depth as before there will be no loss of flowers this spring, probably they will flower even better next season. Before replanting the various divisions, or whole clumps as the case may be, break up the soil to a good depth, and freely mix with it either well decayed manure or good leaf soil. Plant firmly, and keep the clumps well down into the soil, exposed roots being too often seen. Finish off with a good mulch of leaf soil, short manure, or cocoa-nut fibre refuse.

The least that can be done towards preparing herbaceous borders for the coming season is to rake back the soil from about the stronger growers, and after giving a liberal top-dressing of decayed manure or leaf soil, return it to its original position. Later on the shoots where at all crowded should be freely thinned.

Slugs, though not so abundant this year as usual, may yet prove troublesome. Trapping with slates laid on the ground, or with heaps of Broccoli leaves, brewer's grains, or bran and sugar, is the best way out of the difficulty, though much may be done by using fine ashes and soot freely about the plants, a light surfacing of malt or kiln dust acting both as a fertiliser and deterrent of slugs. The latter have a great partiality for Pyrethrums, and the clumps of these left in the open ground must be well sooted over, otherwise not a shoot will be left. Pyrethrums wintered in pots under glass ought to be early planted out, and taken good care of subsequently.

February is usually a good time to plant *Ranunculus*, and also to take up, divide, and replant the hardier types of *Gladioli*; and a few of the choicer varieties, the corms of which were stored away in boxes, might also be started singly in 4-inch or slightly larger pots, using light loamy compost and plunging in ashes or cocoa-nut fibre refuse. Being planted out in the mixed border before they become root-bound some extra early spikes of flower will result. From the middle to the end of March is a good time to plant out the bulk of the roots.

Frosts have not been very destructive among the plants of Carnations and Picotees in the open borders, and if they have been well protected from ground game and slugs a good display of bloom ought to be had this season. The most that can be done at present is to distribute a little soot or some other mild fertiliser among the rows, and to lightly stir it in with flat hoes. Any cuttings or layered plants in small pots and not intended for flowering in larger sizes ought to be early planted out, or the flower spikes will be prematurely formed and weakly.

Seedlings of last year's raising and duly transferred to the open borders will most probably flower so freely that it will be impossible to procure either cuttings or layers from most of them. As a consequence more seedlings will have to be raised this spring to take the place of those which it will no longer pay to retain. A single packet of seed will usually give enough plants and a sufficient variety for medium sized and small gardens; but for larger places, or where extra large quantities of cut flowers are needed, three or four packets are none too many. Order the best border varieties, and a bed of the Scarlet Grenadier would give useful flowers of one colour. The new *Marguerite* or *Margaret* strains, these flowering the same season as raised, are better adapted for pot culture than for borders, though the plants are nearly or quite as hardy as the ordinary border varieties.

In each case late sowing is a mistake, those raised and planted out early where they are to flower giving by far the best results. If the seed is sown now thinly in boxes the plants may eventually be transplanted direct from these to the open borders; but if either pots or pans are used, pricking out or potting will have eventually to be resorted to. Sow in light sandy soil, give a gentle watering, place in gentle heat, and cover with squares of glass. Keep moist and well shaded till the seed germinates, and there

will be few or no failures. Pinks may be quite as easily raised from seed.

While the demand for Poppies lasts most gardeners will have to grow them. Unfortunately, though many of them are extremely showy, their beauty is of short duration, a mass of seed pods being anything but ornamental. The earliest display is had by sowing the seed in the autumn, or as soon as ripe, where the plants are to flower, thinning the seedlings freely in the spring. A grand show can also be had by sowing either patches, lines, or beds, with the several different forms now, or early in March, and again about the middle of April. Sow thinly, as the seed germinates surely, and cover with a little fine soil. The seedlings must be well protected against slugs and early thinned, transplanting a few clumps, if need be, with a trowel.

The Shirley Poppies, though scarcely so brilliant as the Japanese, Carnation, Ranunculus, and Pæony-flowered forms, are yet among the best that can be grown. An early display of the latter can be had by sowing a few seeds in 3-inch pots, placing these in gentle heat to germinate, hardening, and planting the seedlings before they become badly root-bound. To follow these sow more seed now, or very soon, in the open, and again during the month of May.

Iceland Poppies (*Papaver nudicaule*) in three distinct colours, are very popular, and these may be treated either as perennials or annuals. Those now in the open ground will bear dividing and replanting, and a fresh stock can be raised either in the open or in pots as advised in the case of Shirley Poppies. The latter plan is the best if the plants are wanted to flower this summer.—I.



SEASONABLE NOTES.

THOSE who have no Orchid house proper, but who grow a few Orchids amongst the occupants of the stove and other houses, should be careful to select those most easily managed under such conditions, especially as they have to do duty in most places as room plants when in flower.

Dendrobium nobile and other *Dendrobiums* are easily grown where plenty of heat is at command, but their growths must be thoroughly ripened afterwards, or they will not long remain in good health. As their young growth is often advanced at their time of flowering it is not wise to subject them to room treatment too long.

Cœlogyne cristata is an Orchid that adapts itself to the above conditions remarkably well. We have plants here that have been in the drawing-room for three weeks, when in flower, for the last four years without any apparent harm to them. This Orchid during its season of growth should have frequent supplies of liquid manure, and fine pseudo-bulbs will be the result.

Another easily managed Orchid is *Zygopetalum Mackayi*. This does well with a little loam added to the peat and sphagnum. It should have abundance of water and feeding in preference to too often potting.

Cymbidium Lowianum is an Orchid that everyone with a house that can be kept moderately warm should have. Good turfy yellow loam, intermixed with sphagnum moss and a few broken potsherds, with a sprinkling of silver sand and liberal treatment in the matter of watering, is what this plant delights in.

Both the two last do well as room plants if not kept in them too long.—E. R. M.

CŒLOGYNE CRISTATA.

ALTHOUGH generally classed as a cool Orchid, this beautiful and valuable flowering plant will well repay the grower for giving it intermediate treatment while making its growth; shading from bright sun to prevent the foliage being scorched, to which it is subject after syringing and the house is charged with moisture. It is well worth attention in this respect. When the pseudo-bulbs are made and the flower growths are showing on the under side in the early autumn, remove the plants to a temperature of about 50°, admitting at this period of the year all the light possible, they will gradually advance and expand their pendant racemes, being careful to give no more water than to prevent shrivelling of the pseudo-bulbs and the flower growths from damping, to which they are liable. This treatment I have given to the plants under my charge, and I have been rewarded at this date by plants in 8-inch pans carrying from twenty to thirty sprays of beautiful white

flowers. Hitherto I had given it cool treatment with indifferent results as to flowering, although making plenty of pseudo-bulbs, evidently not fully matured, without which no one can command success.—R. C. N., *North Hants*.

BULBOPHYLLUM COMOSUM.

FOR the discovery and introduction of this pretty little *Bulbophyllum* we are indebted to General Collett, who sent it to Kew



FIG. 21.—BULBOPHYLLUM COMOSUM.

through Calcutta three years ago along with plants of the beautiful *Cirrhopetalum Colletti* and other things collected by him in Eastern Burmah. The *Bulbophyllum*, he states, was common, and the flowers, which are highly prized by the Shan maidens for ornamenting their hair, were sold in the Bazaar. The plant has clustered

pseudo-bulbs as large as Walnuts, soft and wrinkled as in some *Pleiones*. The leaves are narrow, 6 inches long and deciduous. The flower scapes are developed after the fall of the leaves; they are 10 inches long, hook-like above where the flowers are. These are white and clothed with soft hairs on the sepals; they are also fragrant and remain fresh on the plant a month or more. As a species *B. comosum* is a near ally of *B. hirtum*, a Himalayan plant which has been in cultivation at Kew and elsewhere many years. It is also allied to *B. lemniscatum*, the microscopic but delightful little species figured in the "Botanical Magazine," t. 5961. This is now flowering at Kew in the same house with *B. comosum*.—W. W.

THE FLORIST RANUNCULUS.

[Read before the Wakefield Paxton Society, February 12th 1892, by Rev. F. D. HORNER.]

WHEN I came to think over a paper on the florist *Ranunculus*, I had fears that it would be short and sad. Short, because perhaps but few among us take an active interest in the *Ranunculus* now, though I feel sure that none will say they do not care about it; and sad because it is almost like writing a memoir to think how many exquisite varieties of the flower are dead and gone. I may succeed, perhaps too well, in writing the shortness out; but a tone of sadness I know you will hear, even in the last words of my lecture.

To some of us who have been familiar with the *Ranunculus*, it is only a memory now, and I fear it is certain that most of the refined and lovely varieties introduced by such raisers as George Lightbody, Carey Tyso, and Kilgour, are now lost to cultivation. My present collection consists of the best which I have been able to find, selected from many poor varieties. In this I have had to be assisted by the foreigner, who has on his lists a sprinkling of flowers that I feel sure, from old recollections, are of British birth and lineage, while a few others may be suspected through the thin disguise of a new and foreign name. You may remember in Chas. Dickens' "Nicholas Nickleby," that a Mrs. Wititutterly had in her collection of domestics a page boy whom she called Alphonse, of whom the author remarks that although the youth answered to that name, yet if ever an "Alphonse" carried plain "Bill" in his face and figure, that page was the boy. So also of the *Ranunculuses* I allude to with Continental names—the disguise is penetrable.

Now, even as the manner of man is known by the company he keeps, so it may be to some extent with the habits of a plant. The *Ranunculus* family is a moisture-loving one, and the very name is suggestive of marshy places, for the name *Ranunculus* is a modification of the Latin word *Rana*, a frog, and thus at once suggestive of damp habitats.

So in *Ranunculus aquatilis* we have a purely aquatic member of the family, a plant possessing the beautiful provision of a distinct and special foliage at its flowering season, admirably adapted for keeping the heads of its white flowers above water by buoying them up after the manner of a life belt. In the well known Marsh Marigold, *Caltha palustris*, we find one of the *Ranunculus* tribe which may be called amphibious, as living both on land and in water, only the land must not be dry nor the water deep. Then, again, the common Buttercup and our *Ranunculus* are terrestrial representatives of the family.

The florist *Ranunculus*, always accounted of first rate standing in the roll call of our old florist flowers, occupied a very welcome place in that brilliant and varied company that, passing in review before us through nearly all the floral months of the year, began in March and April with the Gold-laced Polyanthus and Anemone, till the frosts of October cut the Dahlia down. There is a gap between the Tulip and the Pink, which the *Ranunculus*, just happily lessened. It is a lonely feeling for the florist to be without one of his special favourites in the months when there are flowers everywhere: and so, in my reminiscences of old bygone florist days, I recall the memory of many of us who had the *Ranunculus* to unfold her varied beauties just as the glories of the Tulip fell.

It is not difficult to suggest reasons for the decline of the *Ranunculus*, apart from change of fashion, and the rise of other recreations than floriculture for leisure hours of young men in these days of ball-kicking, and ball-hitting, and ball-volleying games and tournaments. I am as far as possible from despising any fair and manly game or sport; but I am sorry if a quiet, gentle, pure, and refreshing recreation like floriculture suffers in the press of counter attractions, and is left short of young hands to follow the older ones. There is, beyond this, the increased difficulty of finding garden room round towns as easily as our fathers did; and of getting things to grow there as they used to do, even if room could be found. You can get outside a big town

still, but you have to go further than before to get outside the radius of its polluted air. There is, however, no real mystery, and but little difficulty in the culture of the *Ranunculus*. The great point is this;—much exact punctuality is required in certain stages of its management, and if attention flags, and neglect creeps in at critical times, the revenge of the plant is swift and marked, it may be even to its own destruction. I can remember that some growers never did bloom their *Ranunculuses* well; and a thinly flowered bed is always a discouraging and uncomely sight, since the foliage of weak tubers is continually dying down, while the rest is fresh and green, and proud of the beautiful flowers it supports.

One difficulty with the *Ranunculus* in our mixture of a climate "in one hundred named varieties," is the extreme restlessness of this tuberous plant. Paradox though it seems to be, our only way of contending with this restlessness is to make the *Ranunculus* take a very long rest. It is quiet enough when you have it quiet, but the grey silky eye of the new tuber, while it is left in the ground, will begin to root very soon after it is ripe, and break into leaf sometimes before the old foliage is dead. Some years ago I saw in Southern Italy, it would be in February, a collection of *Ranunculus*, among which were Lightbody's Commodore Napier, lemon ground red edged, and a few more florist varieties. These plants were one mass of foliage as if they had never or hardly ever died down. They seemed exceedingly well grown, and were full of stems in bud and a few opening flowers. There may have been some of the Turban varieties among them which, like the modern French *Ranunculuses*, are too rough and loose for anything.

The foliage of the *Ranunculus* is our difficulty in more ways than one, as I will explain presently. It might pass safely through our mildest possible kind of winter, but who is to depend upon that? The dry tuber is a good deal hardier than the green leaf, but it is not safe to expose either to frost. So we avoid that by planting at such a time that when the young leaves appear there will, or should be, no sharp frost. I may say that a late spring frost will not hurt the young foliage, provided that the morning sun does not shine upon it while frozen; I would not answer for the consequences if it did. My *Ranunculuses* last year had the leaves frozen in that Whitsuntide frost, but lying on the north side of the Tulip house, they were in shade till they were thawed. We throw the *Ranunculus* tuber into the terrifically long sleep of seven months; but it will awake out of this deep trance quite safe and sound if only it has been carefully dried before being stored away, and kept cool, out of reach of frost, and not deprived of fresh air.

It must not be placed in any circumstances under which it can contract damp; if it does it will be attacked by blue mould round the silky fluff of the eye, the claws of the tuber will drop off, and the root is dead. This is a point of the utmost importance, I cannot lay too much stress upon it. Storage in paper bags is not safe if kept where there is the slightest chance of dampness, and it is worse if many tubers are in the bags, as the roots may give off some moisture while kept in quantity in a closed bag. I prefer the safer way of keeping them in sight, such as by laying them out one layer deep on wooden trays, or if kept to name, in boxes like those we use for Tulips.

The best time for planting *Ranunculuses* is, without doubt, the first favourable weather that occurs in or after February. So far as the dormant tuber is concerned, it will abide patiently long after that without the slightest sign of uneasiness, such as the Tulip bulb makes. The *Ranunculus* tuber will look no worse in May than in February, but it will be a great deal weaker nevertheless, and the longer it is out of the soil after February, the greater are the chances of its not flowering. It will hardly bloom from even strong tubers if not planted till, say, mid-April.

In the necessary process of drying, the tubers have shrivelled a good deal, and will swell again enormously when planted, and by this means sometimes work themselves to the top of the soil. If left exposed of course they suffer, and are liable to be tasted by any passing snail, who, with his sharp appetite, may be looking out for the nearest restaurant. A day or so before planting, I wet the tubers thoroughly and they quickly swell, and do not lift themselves out of bed again. A large tuber, composed of several crowns, may also more safely be divided when softened with absorbed moisture. In the dry state the claws are very brittle. Great care must be taken that none of these are broken off. The loss of claws is a check to the plant, and apt to occur when planting or separating them in a dry state, unless they are carefully and patiently handled.

The *Ranunculus* is rather particular as to the depth it prefers to be underground. If this is either too deep or too shallow, the new tuber will be formed, not as it should be—a compact group of claws immediately over the neck of the old tuber, but of claws

distributed along an ascending or descending axis or stem, according as the plant desires to be deeper or shallower, and such formation is never vigorous. A depth of 1½ inch to the top of the tuber will be sufficient. The roots may be planted pretty closely: large tubers 2 inches apart, in rows across the bed, with a 4-inch distance between the rows. If the foliage meets across the rows, it affords the advantage of keeping the soil cooler, and helps to check evaporation.

(To be continued.)

PALMS FOR ROOM DECORATION.

PALMS are indispensable for room decoration: whether they are used in solitary positions or rising out of groups, they impart attractions that no other plants can do. There are numbers of varieties from which a suitable selection may be made that will bear the confinement of rooms for a long time without being seriously injured. It is necessary, however, to keep these plants free from dust, water them with care, and remove them from dark to light positions frequently. Some judgment is needed in selecting positions for the different kinds. Those of a hardy nature that can be kept in a cool house should be assigned to draughty corners. Although some Palms bear greenhouse treatment with impunity and will live in the open air during the summer months, it must not be forgotten that this treatment does not improve their appearance or promote their progress. The beginner would do well not to divide those selected for this purpose into two sections and grow some in a warm house and the others in a cool one. The cool house kinds will be found to increase in size and make double the progress if grown in heat until they have attained a size sufficiently large for the purpose for which they may be required. They may then occupy a position during the winter months where the night temperature is never allowed to fall below 45°. *Chamærops Fortunei* is not considered, for it will thrive in almost any position, and will in some localities endure the severity of our winters out of doors. For general use, however, it is too stiff and heavy. We keep an average night temperature of 55° for our Palms during the winter months, both for growing and restoring those that have been used in rooms. The summer temperature ranges from 65° to 70° at night and 10° or 15° higher from sun heat. We syringe freely and maintain a moist temperature, giving air daily from May to October to maintain a sturdy growth. Plants from this structure are hardened for a few days before they are taken into rooms. If the whole are needed for any special occasion the temperature of the house is lowered 5° at night and more air is given during the day. By this treatment we find little or no harm results by using plants for a night or two. Shade is necessary in growing Palms, and a high dry temperature must be avoided, for it is favourable to the production of thrips and the rapid increase of scale. Soot water in a perfectly clear state is invaluable both for watering and syringing over the foliage. This imparts to the foliage a dark green healthy appearance.

Cocos Weddelliana, being a general favourite, is given the first place. It will not, however, bear the hardships that many other varieties will. Fortunately it is a cheap Palm, and can be grown on quickly into a suitable size for table and other forms of decoration. It will be found to do better in a temperature of 60° during the winter, and should be potted in three parts peat to one of loam, with a liberal quantity of sand. It is a fine rooting Palm, and will not flourish satisfactorily if the soil used consists mainly of loam, which forms the staple soil for all other kinds. Even for *Kentias* we have discontinued the use of peat. We use good fibry loam and coarse sand, with charcoal added and bonemeal. Artificial manures are applied about three or four times a year to those that have filled their pots with roots.

Kentias are the best of all Palms for decoration: there are no others that can equal them, either for bearing the hardships of room decoration or for their graceful appearance. *K. Belmoreana* is the most handsome of these, but is of slower growth than *K. Canterburyana* and *K. Fosteriana*. The whole of the *Kentias*, however, are well worth growing, and if limited to one class of these plants we should certainly grow *Kentias*, to the exclusion of all others. *K. sapida* is the hardiest of all. Being of dwarf slow growth it is very shapely, and suitable in a small state. *K. Belmoreana* is also perfect in shape in a small state, while *Fosteriana* is rather too thin.

Phoenix reclinata and *P. tenuis* are useful Palms for room decoration, but they are stiffer and not so graceful as *P. rupicola*. We are increasing the stock of this, and shall gradually exclude the other two. This ranks next for gracefulness and beauty to *K. Belmoreana*. During the past two years we have had frequently in the centre of a room a large plant of this variety, and little or no harm has been done to it. It is wise, however,

to take them out occasionally for a few months to the more genial conditions of the structure in which Palms are grown.

Geonoma gracilis is also a light useful Palm, and in potting and general treatment, in a young state, it should be grown with *Cocos Weddelliana*. In a young state, even in very small pots, it is useful for table decoration. Being perfect in shape, it is one of the best Palms that can be grown in 2 and 3-inch pots where plants of this size are appreciated in glasses for the ornamentation of the dinner table. As the plant advances in growth it still retains its light graceful appearance. Although it does not bear confinement in rooms long without injury it is nevertheless well worth growing for special occasions. For rising above groups of plants at the base of mirrors, or for elevation near the sides, it and *Cocos Weddelliana* have no equals.

Seaforthia elegans, although it cannot compete in beauty with the *Kentias*, is for the purpose in view a valuable quick-growing Palm, and one we employ largely for general purposes to save those of slower growth and greater value. Well-grown plants are very effective in groups, and even if they become injured they are much more quickly restored than *Kentias*. This is unquestionably a useful conservatory Palm, and in this structure it may be freely employed when it is large enough for use in rooms. It will also grow under the shade of Vines, and will bear this treatment throughout the greater portion of the year, although when the Vines are at rest it is advisable to remove the Palms where the temperature will not fall quite so low. *Seaforthias* grow quickly in heat, and those starting to raise a stock of Palms would do well to employ this until better kinds of slower growth can be developed.

Latania borbonica can be used in small pots, for which it is suitable when grouped with other plants. If these are grown in heat they are more effective than if grown cool, and assume a low flat appearance. When fully developed it is perhaps the most unsuitable Palm that can be grown for decorative purposes. It is too stiff and flat, and is difficult to arrange tastefully with other plants. We have only found it serviceable for one purpose or position, and that is when the pot can be wedged into a corner and the whole of the plant exposed to the front. We may pass *Thrinax elegans*, *Chamærops excelsa*, *Corypha australis*, and others of this style of growth as too formal and heavy for general purposes. A few plants at times may be found useful in positions where it would not be unwise to use those of a valuable and tender nature. Again, the plants can be stored in any cool house when they are not wanted. This certainly is an advantage, and a few therefore of these may be grown for supplementary purposes.—
DECORATOR.

SEED BEDS AND SOWING SEED.

BORDERS in front of walls or fences having a south or west aspect are favourable sites for raising young plants wherewith to stock the kitchen garden. A south border is obviously better than a west one for making the earliest sowing. Every foot of space should be made the most of, as, indeed, it is in many places. In making early sowings, only a pinch of seed of the several kinds and varieties required need be sown. The ground having been previously manured and dug, should be trodden when dry enough not to adhere to the feet, raked, and marked into beds 4 feet wide, with an alley 1 foot wide between the beds. Assuming the beds to be 9 feet long (the average width of borders from the alley running parallel with the wall), one or two of these beds can be divided into twelve plots, each by the impression of the marking-rod, will be amply sufficient space in which to raise the necessary plants. In making the divisions, give large spaces to seeds of the Brassica family—Cabbages, Cauliflowers, Brussels Sprouts, Borecoles, Savoys, and Broccoli—and Leeks, and proportionately small patches to Lettuces. By sowing in the manner indicated, not only space, but seed is saved.

I am well within the mark in stating that annually seeds of Cauliflower, Cabbage, Borecole, Brussels Sprouts, Lettuces, Endive, Turnips, and Peas, are sown much too thickly, resulting in the crowding and consequent attenuating of the plants. If the seeds are obtained from a reliable seedsman there need be no anxiety as to their being good. This being so, they should, in the case of seed sown broadcast, be scattered thinly over the seed beds or seed pans, covering them lightly, say to the thickness of half an inch, with soil from the alleys, raking them, and patting the soil with the back of the spade to compress the soil, and cover with garden netting, supported by short forked sticks, as a protection from birds. The seedlings will thus have room to develop three or four leaves without touching one another, when they must be thinned, and the thinnings be pricked in small beds or finally transplanted, the ground being then ready. In sowing Parsnips, Carrots, Turnips, Beet, Spinach, &c. in drills, the seed should only be sown a little

thicker in the row than the plants are intended to be when thinned out. This will allow for any mishaps that may occur between the sowing and thinning time. The time of year, as well as the character of the soil, should be considered in sowing, the seed being sown thicker early in the season and in heavy soils.—H. W. W.

OPEN AIR PEACHES.

I HAD hoped, should Mr. Iggulden reply to my note respecting his method of dealing with open air Peaches, that some clearly defined defence would be made. Alas! my hopes are not realised; he quietly takes shelter in the omission of the word "order," which to some extent modifies the sentence. Yet I cannot see that it has any material effect in strengthening his case; the direct question still remains unanswered, viz., the necessity for moving trees so late in the season. What are the advantages gained? When a man advances any new method he should be prepared to clear up every point and state every advantage. The only advantage I can see—disadvantage would be a better term—is the necessity for more labour and attention, which is altogether uncalled-for at that period of the year when a thousand and one important duties are crowding upon a gardener daily.

Mr. Iggulden now admits that he does not recommend the practice generally; that admission alone shows clearly how uncertain the method may prove. It would have been far better had Mr. Iggulden cut out the sixth paragraph of his article and inserted it under the heading of "Experiments with Open Air Peach trees."

It will be some consolation for him to know that he has at least one champion in the cause, Mr. John Chinnery. With the Editor's permission I should like to ask one or two questions. Admitting the fact that his Peach trees have succeeded so well under what I may term exceptional treatment, had Mr. John Chinnery taken charge in November instead of May would he have waited until the following May to root-prune and remove the Peach trees? Again, when the trees require root-pruning or removing will he rest content by waiting until May to do the necessary work? If so I am afraid he would not receive so congratulatory a note from his employer that season. Of course, in exceptional cases exceptional treatment is required at times, but what I wish to elicit is whether the system is worth advocating.

I may say respecting the re-reading of Mr. Iggulden's article which Mr. John Chinnery refers me to, that I have re-read it carefully, and the more I read the more difficult it appears. In support of this statement allow me to refer Mr. John Chinnery to the fourth paragraph of the article, page 79, he will see that root-pruning is spoken of in the following words: "Cropping young trees answering our purpose better than constantly root-pruning." Now pass to the sixth paragraph, which reads: "When the trees are in full bearing 'order' it is advisable to undermine and cut through deeply running roots." Suppose, after undermining, no deeply running roots are found, which is quite possible, because I take it that when a tree is in full bearing order it is in a satisfactory condition. Then why root-prune? Would it not be preferable to follow the advice given in the fourth paragraph and take a crop and so regulate the roots and growth? If it answers Mr. Iggulden's purpose in such cases why recommend manipulating the roots yearly, when the trees are in full bearing "order"? The question, in my opinion, is far from meeting with practical support.

It is in the interest of science and good gardening that this subject is brought to the front. Good gardening does not result from working in direct opposition with Nature, and science misdirected is far worse than science unknown.—N. V. VERRONS.

I THINK your correspondent "N. V. Verrons" was a little too severe in his condemnation of Mr. Iggulden, and, indeed, perhaps a little too hasty. For although Mr. Iggulden omitted the word "order," I think any reasonable person could not think that he was really recommending your readers to lift their Peach trees while the leaves and fruit was still on them. Your correspondent is too practical for that. "N. V. Verrons" also makes some remarks about the Peach trees at Marston. Now, I consider that such remarks are not only discourteous but they are unjust in the extreme, and further, if writers to periodicals are going to make such remarks I fear that it must prevent many of our most able gardeners from giving their experience through the best medium of imparting knowledge to young gardeners, viz., the weekly periodical. I would also like to ask, where is the gardener who can have everything in a state of excellence, more particularly he who has a large establishment to cater for? and particularly where the gardener is handicapped for want of moderate labour it is absolutely impossible to do everything as one would desire. But whether or not open-air Peach culture is a success at Marston I am unable to say, not having seen the place, but one thing must be quite clear to every reader of the Journal, that gardeners should not try to expose each other's defects through the Horticultural Press.—T. A.

I WAS pleased to notice Mr. Iggulden's reply to "N. V. Verrons" in last week's issue (page 130). Judging from the prize lists of the various shows, I think Mr. Iggulden's success as a Peach grower is quite sufficient to justify us in attaching importance to any statements he may make respecting his practice. It is to the pages of the Journal that many of us are accustomed to look week by week for new suggestions and ideas; and those who furnish them, stating the conditions

under which their ideas have been put into practice, and giving the results, deserve the thanks of all who are interested in the art of assisting Nature in the development of her many wonders—both useful and beautiful. During the past few years horticulture has made considerable progress. Surely there are many things done in everyday practice now which a few years ago would have been looked upon as unreasonable absurdities.—W. H. W.



MR. RIVERS has sent us some specimens of cooking Apples, among which were a few of BISMARCK, with the request that we should test their qualities. What is remarkable in this fine Apple is its wonderful fragrance when baked. When put upon the table there was emitted a scent as if of Violets, but not so powerful as to be objectionable. This is a characteristic which we have never before observed, and we shall be glad to know if any of our readers have noticed it.

— FRUIT AND FLOWERS FROM THE CHANNEL ISLES.—During the past twelve months enormous quantities of produce have been received from Jersey and Guernsey. It is reported that 84,000 baskets, largely consisting of Grapes and Tomatoes, were consigned to one leading salesman in Covent Garden Market in that period. Large quantities of Melons, Figs, and flowers were also received.

— SHROPSHIRE HORTICULTURAL SOCIETY.—Messrs. Adnitt and Naunton, Shrewsbury, desire us to correct an error in the paragraph respecting the last year's work of the above Society. The prize money paid in 1891 was £597 5s., not £428 7s. 6d., as stated at page 127.

— RECENT SEVERE WEATHER.—As, no doubt, you will be receiving reports from different quarters as to the amount of frost, I thought it might be interesting to note what has been observed in Staffordshire. February commenced with us in beautiful weather, and up to the 14th inst. it was quite spring like. Our thermometer in the open facing the south for the thirteen days registered 24°, as the lowest on Thursday the 4th, and 65° as the highest on Monday the 1st. With the sunny days and mild nights various fruit trees and shrubs seemed to be quite active and grass quite green and growing. The morning of the 15th was a decided change, a demonstration of the fickleness of our climate, the glass showing 7° of frost. During the day a strong nor'-easter brought us 4 or 5 inches of snow, and as an inducement for it to stay for a while the thermometer fell to 19°. We registered 24° on the 16th, and although during the day following the glass rose in the sun to 64°, it fell again to 11°. Thursday, the 18th, was bitterly cold; our reading was 27° as the highest, and at midnight we were experiencing 26° of frost. After such exceptionally mild weather the fall of snow would be welcomed by many as good protective material, taking into consideration that such a sudden return to winter finds many plants in a rather critical state.—A. V. M.

— MR. C. PORTSMOUTH, Elimore Hall, Haswell, Sunderland, writes:—"It may perhaps interest you to know that we had 35° of frost (3° below zero) here on the morning of Feb. 19th. Fortunately there was about 6 inches of snow on the ground, and it continued snowing on Feb. 20th."

— MR. JOHN FORBES, Hawick, Scotland, informs us that his thermometer reached zero there on the morning of Feb. 19th.

— A CORRESPONDENT of a daily paper writes:—"On Thursday night and Friday morning the thermometer at Blencove, near Penrith, registered — 7·8°, or 7·8° below zero. It is 4 feet from the ground and in the shade. No such temperature has been noticed here since observations began in 1871. On several occasions it has approached zero, for example in January, 1881, it was 2·5°; February, 1873, it was 2·5°; March, 1881, it was 4°; December, 1874, it was 4°; December, 1878 it was 2°; and December, 1879, it was 2°. These, however, were all about zero. The snow in the fields was 6 inches deep, but as it fell without wind there were no drifts. Sun spots have been and still are numerous. The barometer, which was at 30° (not corrected) on Saturday week fell an inch on the following Sunday and Monday."

— SEASONABLE WEATHER.—A severe frost, cold winds and snow, with a touch of a blizzard experienced last week came none too

soon, for had the mild weather lasted much longer the fruit trees would soon have been dangerously forward. The earliest Pears, notably Jargonelle, were well on the move, the fruit buds being quite white; while the Apricots also were giving signs of bud movement. Had the fine weather lasted, many probably would have been tempted to commence seed sowing in good earnest, and might have erred greatly in so doing. Frost and snow will have effectually checked seed sowing, and it is to be hoped the fruit trees will flower all the more strongly and set better crops for the temporary check given to the sap.—W. I.

— THE WEATHER IN SCOTLAND.—February 15th to 22nd was a week of decidedly wintry weather. Snow fell heavily in the earlier part of the week over nearly the whole country, 6 to 10 inches undrifted being reported. In South Perthshire but little more fell than sufficient to whiten the ground till Saturday afternoon, when heavy showers began. Nearly 6 inches fell on the 22nd, but a partial thaw set in in the evening and still continue. Frost of from 7° to 24° on the morning of the 19th occurred.—B. D.

— ON February 15th we had heavy snow showers. A second fall took place through the night, and on the morning of the 16th it was about 6 inches deep. The temperature since the 13th had been gradually sinking, and on the morning of the 17th the thermometer stood at 19°, on the 18th at 12°, and on the 19th at 2° below zero, which is the lowest temperature we have experienced since December, 1860. The thermometer hangs in a sheltered place, so that in exposed places the temperatures will be lower.—W. T.

— WILLIAMS' MATCHLESS CELERY.—This is an excellent variety, though one not often favoured by even a passing notice. I saw it exhibited at an autumn cottagers' show in the year 1890, and I was so struck with the handsome shape of the stalks, as well as the colour, that I resolved to give the variety a trial during the season following. I did so, and can speak in the highest terms both of its quality and hardiness. It is a red, of medium size, quite large enough for table use, but perhaps scarcely so for exhibition purposes.—W. S.

— BESIDES being a handsome deciduous tree, MAGNOLIA CONSPICUA is also well adapted for covering high walls and buildings. In such positions its highly fragrant white and purple flowers, being in a great measure sheltered from the weather, develop in their true form, and are much more attractive than those cut from trees in more exposed positions. Every flowering shoot and bud can be easily distinguished now. Non-flowering shoots should, therefore, now be pruned to a bud near the base, so that when growth begins good shoots may be formed for next year's flowering at a reasonable distance from the wall.

— WOLVERHAMPTON FLORAL FETE.—The schedule of prizes for 1892 is on a most liberal scale, and as fruit and Roses have extended encouragement a grand display of both may safely be expected. The sum of £67 is devoted to Rose prizes in the ten open classes, and a goodly sum to fruit; prizes of £7 10s., £5, £3, and £1 10s. for a collection. Stove and greenhouse and other plants are well provided for, and the sums of £20, £15, and £10 are offered for sixteen stove, greenhouse, and ornamental plants. Several classes are reserved to gentlemen's gardeners, open to Staffordshire and three adjacent counties, with good prizes for fruit, plants, cut flowers, and vegetables. The amateurs who reside within ten miles of Wolverhampton have several classes devoted to them with liberal prizes throughout, and thirty classes are devoted to cottagers.

— THE NATIONAL AURICULA AND CARNATION SOCIETIES (SOUTHERN SECTION).—The fifteenth annual Reports of the National Auricula and Primula Society, also the National Carnation and Picotee Society, are before us. The year's expenditure of the former Society slightly exceeded the income, but there still remains a balance of nearly £9 on the right side of the account. It is, however, not the less desirable that each year's income should cover the expenses, and a moderate increase in the number of members would enable this to be done. The financial statement of the Carnation, &c., Society, shows a balance on the credit side of nearly £22, the result mainly of the unfavourable weather limiting the competition at the last year's Show and consequent retention of prize money, and also as is acknowledged by the generous subscriptions of Lord Rothschild and Mr. Martin R. Smith. To both the above mentioned reports are appended select and reliable lists of the best varieties of flowers in the several sections arranged in order of merit as represented by the number of votes of expert florists. The next Exhibition of the Auricula Society will be held on April 19th, and the Carnation Society on July 26th, in the Drill Hall, Westminster.

— GARDEN APPOINTMENTS.—Mr. William Pettigrew, gardener for the last four years to — Wilson, Esq., Rigmaden Park, Kirkby Lonsdale, has been appointed gardener to Lord Windsor, Hewell Grange, Worcestershire.

— THE death is announced of Mr. MONTGOMERY HENDERSON who for some years was in charge of Cole Orton Hall Gardens, Ashby-de-la-Zouch, Leicester. Mr. Henderson was born at Swanston, near Edinburgh, in 1808, and commenced his gardening experience at fourteen years of age, when he entered one of the Edinburgh market gardens. After some nursery experience he served at Salton Hall Gardens and Melville Castle. In 1832 he took charge of the gardens at Warmwell House, Dorchester; two years later he had a similar charge at Gopsall Hall, Leicestershire, and proceeded thence, after four years, to Mr. Knight's, Chelsea Nursery, whence shortly afterwards he went to superintend the Cole Orton Gardens. There he remained until about ten years ago, when he retired, having gained considerable fame as a Grape grower. Mr. Henderson died on February 14th, in his eighty-fourth year.

— THE death of the well-known botanical collector, B. BALANSA, is recorded in the French journals. He died in the military hospital of Hanoi, Tongking, to which country he went on a second botanical expedition. Balansa was not merely a collector of plants; he was also a botanist, though he never published much, his principal contributions to botanical literature being on the Grasses of New Caledonia and of Cochin China. He also published a botanical account of his ascent of Mount Humboldt in New Caledonia. But as a botanical collector Mr. Balansa contributed to nearly all of the principal herbaria of Europe, having spent many years of his life collecting in Algeria, Morocco, Asia Minor, New Caledonia, Paraguay, Tongking, and other parts of the world. On Sir Joseph Hooker's recommendation he was attached as botanist to the Commission appointed in 1873 by the Paraguayan Government for the scientific exploration of its territory; and he spent three years and a half traversing the country in various directions for this purpose. He made very large botanical collections, but these, as well as his New Caledonian plants, have only been partially worked out. Kew purchased a set of about 2000 species.—(Nature.)

— DEATH OF MR. H. W. BATES, F.R.S.—We have to record the death of Mr. Henry Walter Bates, F.R.S., the distinguished naturalist and traveller, and for the last twenty-seven years Secretary of the Royal Geographical Society. From his many years' sojourn in the Amazons Mr. Bates returned with an enfeebled constitution. A fortnight ago he was attacked by influenza, and against that and its complications his enfeebled constitution was unable to struggle. Mr. Bates was born at Leicester, February 8th, 1825. He was the son of a manufacturer, and it was intended that he should follow a manufacturing career. But at an early age he evinced an intense love for natural history, and while yet a youth threw himself into the study of botany and geology. From the first Mr. Bates was a practical naturalist, and scoured the country around Leicester to make collections and study nature at the fountain head. Entomology in the end was the department of science to which he mainly devoted himself, and in 1848, with his friend Mr. R. A. Wallace, he went off to the Amazons to explore its tropical riches, which he did for eleven years, proceeding leisurely from station to station, studying the geography, the people, the fauna, and the flora of one of the richest regions on the face of the earth from the naturalist's point of view. Bates was far more than a mere collector. As is shown in his few publications, he was a man of deep philosophical insight. He was appointed Assistant-Secretary to the Royal Geographical Society in 1864, and there is no doubt that he has done more than any other one man to maintain the high reputation of the Society.

— OSIERS FAILING.—Referring to the note on page 123, "W. T." writes:—"Although Willows are at home by watercourses they do not thrive well in a bog. If they are expected to thrive in a swampy place the ground should be thrown well up in broad ridges or 'lazy beds,' and the water kept running. Willows and their roots in many cases decay rapidly after growth is stopped, fungi spread rapidly, and attack the tissues of the living roots of the adjoining healthy plants, and in a short time a large area in a plantation becomes affected. To grow Willows successfully the ground should be thoroughly prepared for them, and thoroughly freed from all decaying roots; and when a stool dies it should be grubbed out, leaving no vestige of any detached root and the pit filled with fresh soil. When the soil is unfavourable for growing Willows they should be abandoned, and something else grown."

— POTATO WALTER RALEIGH. — Having taken your valuable paper for a length of time I have been expecting to see some account of the Potato brought out in 1890 by Messrs. Hurst & Son under the name of Walter Raleigh. I cannot help speaking in praise of its first-class qualities. Last year I grew the variety side by side with Early Puritan, with the result that the Walter Raleigh came a week earlier, and not a diseased tuber amongst 21 bushels. It is dwarf in growth and good in quality. From 7 lbs. planted the first year 7 pecks were produced, and 7 pecks last year produced 21 bushels, and taking them from the clamp to-day I did not find a bad one amongst them. I should like to hear what results other growers have obtained from growing this Potato. —WALTER GODFREY.

— BOURNEMOUTH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—There was a large gathering of the members and friends of this Society on Wednesday evening last to hear Mr. E. Molyneux's essay entitled, "An Epitome of Chrysanthemum Culture for Cut Blooms for Exhibition." Dr. Hitchcock, President of the Association, presided, and in opening the discussion which followed, made reference to the statement which he had seen of the value of the ashes from the burnt refuse of the old Chrysanthemums, a statement which Mr. Molyneux could not endorse without having proved it. The discussion was heartily taken up by the members, and much valuable information given and received. A cordial vote of thanks was accorded to Mr. Molyneux, and also to the President.

— AURICULAS.—Week after week I look in the Journal to see if there is anything concerning Auriculas, but I am often disappointed. Are the growers so few, or is it that they want to keep it dark? The Roses, Orchids, and Chrysanthemums have their columns, why should not Auriculas have a little corner? I am sure, however little might be said of this, the grandest of hardy flowers, would be appreciated by growers in general, and especially by novices like myself. I have grown them for the last eight years with a fair amount of success, both from offsets and seed, the latter way of increasing them being most interesting. I have been a constant reader of the Journal since 1861, and it has been with the greatest of pleasure that I have read the articles on the Auricula by "D., Deal," F. D. Horner, and others.—M. [We are always glad to publish the experience of cultivators concerning Auriculas or other plants, and no doubt "M." can himself say something useful on the subject that would induce others to state their opinions or explain their practice.]

— ROYAL METEOROLOGICAL SOCIETY.—The usual monthly meeting of this Society was held on Wednesday evening, the 17th inst., at the Institution of Civil Engineers, 25, Great George Street, Westminster, Dr. C. Theodore Williams (President) in the chair. Capt. D. S. Cromarty, Mr. R. Godfrey, Assoc. M. Inst. C. E., Mr. C. Shapley, Mr. E. J. Smith, Mr. E. K. Spiegelhalter, Rev. H. Stewart, and Rev. W. E. Stewart, M.A., were elected Fellows of the Society. The following papers were read:—"The Untenability of an Atmospheric Hypothesis of Epidemics," by the Hon. Rollo Russell, M.A., F.R. Met. Soc. The author is of opinion that no kind of epidemic or plague is conveyed by the general atmosphere, but that all epidemics are caused by human conditions and communications capable of control. In this paper he investigates the manner of the propagation of influenza, and gives the dates of the outbreaks in 1890 at a large number of islands and other places in various parts of the world. Mr. Russell says that there is no definite or known atmospheric quality or movement on which the hypothesis of atmospheric conveyance can rest. "The Origin of Influenza Epidemics," by Mr. H. Harries, F.R. Met. Soc. The author has made an investigation into the facts connected with the great eruption of Krakatoa in 1883, and the atmospheric phenomena which were the direct outcome of that catastrophe. He has come to the conclusion that the dust derived from the interior of the earth may be considered the principal factor concerned in the propagation of the recent influenza epidemics. "Report on the Phenological Observations for 1891," by Mr. E. Mawley, F.R. Met. Soc. This report differs in many respects from the previous reports on the same subject. Among other changes, the number of plants, &c., selected for observation has been greatly reduced, while the number of observers has considerably increased. The winter of 1890-91 proved in England very destructive to the root crops, as well as to green vegetables and tender shrubs. Birds also suffered severely. In Scotland and Ireland, however, there was scarcely any severe weather until March. The flowering of wild plants was greatly retarded by cold in the spring, but during the summer the departures from the average were not so great. The harvest was late, and its ingathering much interfered with by stormy weather. "Note

on a Lightning Discharge at Thornbury, Gloucestershire, July 22nd, 1891," by Dr. E. H. Cook.

— BIRMINGHAM GARDENERS' ASSOCIATION.—At a meeting on February 17th, Mr. Alfred Outram, of the Holloway Nurseries, London, read a paper on "The Progress of Horticulture in the United States," a subject on which he was well qualified to speak, after an annual visit to the States for sixteen years. He alluded to the immense strides horticulture had made in America since his first visit, and of the fine collections of Orchids and other plants now common there, and of their excellent cultivation. He also alluded to the extensive cultivation of fruit at the present time in the States compared with what it was twenty years ago, such fruits as Apples, Peaches, &c., being planted by the thousands now where dozens were planted then. The cut-flower trade is now an enormous business in America, very large trade establishments being devoted to the culture of Roses and Carnations, and to many others required for the market, and when of high-class quality in season they command high prices. Questioned about young men going to America, Mr. Outram remarked that there is a good field there for intelligent respectable young gardeners, who are prepared, if necessary, to do some rough hard work until they can meet with the situation they require. A hearty vote of thanks was given to Mr. Outram for his interesting paper.

— GARDENERS' AND AMATEURS' SEED ORDERS.—We have no doubt that our experience as seedsmen is the experience of the whole trade—namely, that the purchaser of seeds almost invariably withholds his order from his seedsman until he requires the seeds for use, so that, when we get a period of bad weather, such as the frost and snow that we have lately experienced, the orders to the seedsmen immediately drop off, and the large staff provided to meet the business are for the time practically without occupation. Then the weather as suddenly changes, and with the first appearance of sunshine the seedsman is overwhelmed with orders, and the staff is compelled to work at very high pressure for a much longer number of hours per day than would be wished, either by the employer (or as we feel sure) the purchaser. Writing in the interest of the entire seed trade we purposely omit our name from this communication, and feel sure that a word or two from your editorial pen, as season by season comes along, would do very much to bring about a more satisfactory state of things.—LONDON SEEDSMEN. [Our "word" is that the undue delay of seed orders is of disadvantage to many and of advantage to none. Send them along.]

— HEREFORD AND WEST OF ENGLAND ROSE SOCIETY.—The annual meeting of the subscribers to this Society was held last week in the High Town, Hereford, when there were present Mr. J. H. Arkwright (President), the Hon. and Ven. Archdeacon Stanhope, Rev. A. C. Lee, and the Hon. Sec. (Rev. F. R. Burnside). The Hon. Sec. read the report of the Committee as follows:—The Committee, in presenting their annual report, have the pleasure of congratulating the members upon a most successful season. The year 1891 will be an *annus mirabilis* in the history of the Society, as being not only the twenty-fifth year of its existence, but also the year in which the National Rose Society paid its first visit to the city of Hereford. The Rose Show, which was held on July 16th for the first time on the Castle Green, will be long remembered as the finest provincial exhibition as yet held by the National Rose Society, no less than 3243 blooms being exhibited. The Committee desire to express their thanks in the first place to the Mayor of Hereford for his liberal hospitality to the members of the National Rose Society on the day of the show, and in the second place to the Mayor and Corporation for having granted the use of the Castle Green. Considering the many extra expenses incurred by the visit of the National Rose Society, the financial position of the Society must be regarded as very satisfactory. The total expenditure was £172 4s. 5d., while the receipts, including the balance from last year of £2 11s. 7d. and £75 gate money, amounted to £185 6s. 4d., thus leaving a balance of £13 1s. 11d. to be carried forward to 1892. The Committee have decided to hold the Rose Show on Tuesday, July 12th, 1892, and by kind permission of the Mayor and Corporation it will be held in the grounds of the Castle Green.

FUCHSIAS AS BASKET PLANTS.

WHAT is more beautiful in conservatories, during the summer time than hanging baskets of Fuchsias, and yet how seldom are they grown in this manner. Not only does the Fuchsia, when in flower, show itself to the best advantage grown in baskets, but they are always certain to

command a great amount of attention, and the cultivation is simplicity itself.

At the present season, when the old stocks of Fuchsias are being repotted, there are always some which may not be thought worth the trouble again, and if amongst those may be found such varieties as Mrs. Marshall, Lustre, Aratella Improved, or any of a drooping habit, so much the better, for these furnish baskets more quickly. Ordinary wire baskets may be used, and may be prepared as follows. If moss is abundant, place a thin covering at the bottom and sides of the basket, but if it cannot be spared some turves cut thinly will do just as well, as what grass may grow through can soon be picked off. Then arrange a very few potsherds for drainage, and over these place a little of the compost, consisting of three parts loam with a part of well-decayed manure and sand. Leaf mould we entirely dispense with, owing to the baskets being more exposed to the air than if they are grown in pots, consequently the soil being of a stiffer character retains the moisture much longer. On this compost place three or four old plants, according to size, letting them

of bearing excellent fruit. The photograph from which the engraving was prepared reached us with the following letter :—

"We have forwarded by this post a photo of our vinery, taken 10th August last year. The Vines were planted February 10th, 1889—fourteen are Black Hamburg, three Gros Guillaume, and one Foster's Seedling. You will see they are a wonderful crop—over 400 bunches. The largest bunch weighed 7 lbs. 4 ozs.; the next, 6½ lbs.; the third, 5 lbs. 6 ozs. You will note the Vines were planted only two years, and the soil they were planted in was garden soil only, which had grown vegetables for ten years, but a liberal supply of fish manure was incorporated with it. The Vines made fine growth the first year, which was well shortened; robust growth the next, which ripened well, and the result is seen in the photograph, which I shall be glad if you think worth engraving."

We have thought it "worth engraving." We also congratulate



FIG. 22.—MR. C. COLEBROOK'S VINERY: PLANTED IN 1889; PHOTOGRAPHED IN 1891.

slope well towards the edges. In the centre place a smaller one, and fill up with the compost, making the centre slightly concave, so as to facilitate the watering. This being completed, place the plants in a warm house, and as the growths develop, a few ties to bring the shoots in their place, and weak liquid manure about twice a week will be all they will require. When showing bloom they may be hung in different parts of the conservatory, where they will continue to flower throughout the summer. If old plants are not available, cuttings, taken as soon as possible and rooted quickly, make useful baskets the first season, but nothing like the results attained by old plants or those rooted in the autumn.—R. P. R.

QUICK WORK IN GRAPE GROWING.

THAT elaborately made borders are not everywhere requisite for growing Grapes satisfactorily the experience of Mr. Charles Colebrook of Great Grimsby conclusively shows, nor has he found it necessary to proceed by slow and steady steps in allowing four or five years to elapse before covering the roof with wood capable

Mr. Colebrook on his success, and hope to be able to give some details of his practice on a future occasion.

HELLEBORES.

It is only within the last few years that these charming hardy midwinter flowers have become so popular in English gardens, and curiously enough the desire on the part of a few specialists to arrive at something like finality in the nomenclature of *Helleborus niger* and its varieties has been the means of bringing to light varieties unheard of previously. While the controversy was in progress distinct varieties were cropping up all over the country, each with its special markings, different time of flowering, &c. The varieties *altifolius*, *major*, and *angustifolius* may perhaps be taken as the standard ones. They were pretty well known to the older botanists, and were the varieties usually found in general collections. To these have been added, within recent years, *vernalis*, *Riverston* hybrid, *caucasicus* of gardens, the *Bath*

variety, the Brockhurst variety, Madame Fourcade, St. Brigid, W. Brockbank, &c., some of them having probably been in gardens for many years, and grown simply as the Christmas Rose. The gathering of a collection together was the inevitable result of so much correspondence, the comparing and describing of which has been very gradual. In addition to these, however, a host of new forms have cropped out as a result of selection from seedlings raised in this country, and also from the numerous importations that are now of annual occurrence. North Germany, the Austrian Tyrol, and other well-known localities supply our markets; but so many equally good, if not better, forms are being raised from seed that we will soon be able to dispense with collected roots altogether. A collection of plants from the Austrian Tyrol, which we had the pleasure of going over in flower, were plentiful in forms resembling Madame Fourcade, Riverston hybrid, and others, which led to the conclusion that all or most of these varieties were at one time or other imported.

Our chief difficulty with Christmas Roses in the open air in England, and which we suppose will be greatly aggravated in America, is the uncertainty of our season, especially midwinter, when the flowers are most in request. A simple covering of glass is of no use whatever, and if the flowers are wanted for cutting, and wanted clean, they must be grown indoors, and out of the reach of frost. We believe that when the plants are gently forced the flowers are larger and cleaner, and last considerably longer in water. A large group of Italian forms have shown beautiful flowers for many weeks now in the wild garden at Kew, and although invisible during frosty weather they are up as fresh and bright as ever when a change takes place. They have been here without any special cultivation for several years, and every winter brings a greater abundance of flowers, which are much admired by visitors. This mode of dealing with surplus stock will be found a very advantageous one even in private gardens, and large quantities of flowers for cutting could in this way be secured. Hellebores, at any rate the niger section, are gross feeders, and the question of manure or no manure in their cultivation will depend largely on the nature of the soil in each particular locality. Where the soil is heavy and rich little or no artificial feeding will be required, but where it is light or sandy a sprinkling of heavy loam should be given in addition to the manure. In the latter soil, and in dry seasons especially, a mulching of leaves or other material during summer will be necessary. Where Christmas Roses are annually lifted and potted for greenhouse decoration it is essential to keep a double set, lifting them alternately, and never planting back those used for the house until all danger from frosts is past, otherwise the young tender leaves are destroyed, and the plants greatly weakened.

Of the varieties of *H. niger*, *altifolius*, also called *maximus*, is one of the commonest in English gardens, and perhaps the finest of the whole niger group. When grown in shady sheltered situations the flowers come pure white, but where exposed they are shaded with rose on the outside, which, in our opinion, enhances rather than detracts from their beauty. The leaves are large, leathery, and the stalks, as well as the flower stems, are deep purple.

H. angustifolius is apparently an old garden plant, the name being well known in Sweet's time. It was not, however, until 1876 that Miss Hope's variety was recognised as the true *H. niger angustifolius*. The flowers are quite 3 inches in diameter, white, and often tinged with rose on the outside; the leaf-divisions narrow, and the stalks and flower stems green, sparingly spotted red. There are two other well marked forms of *angustifolius* to be found in gardens. The Brockenhurst form, in which the leaf stalks and flower stems have scarcely a trace of purple markings, usually bears two flowers; the other, St. Brigid's Christmas Rose, has pure snow white flowers somewhat cup-shaped, with flower and leaf stalks of a rich apple green.

The Bath variety is almost intermediate between *H. niger* and *H. niger angustifolius*. The flowers are large, flat, pure white; the flower and leaf-stalks spotted red, the latter slightly furrowed.

H. caucasicus is a very misleading name, there being a species, *H. caucasicus*, belonging to the *orientalis* section. It has been widely distributed in England under the above name, and it is one of the most profuse-flowering varieties we possess. The leaflets are coarsely and sharply toothed, and much resemble the Italian forms; flowers pure white, tinged rose on the outside; the flower stalk densely spotted red, and the petiole stout and deeply furrowed. Madame Fourcade is a charming variety belonging to the *altifolius* set. The flowers are nearly 3 inches in diameter, pure white; the flower stalk and petiole red-spotted, the latter slightly furrowed. Of the variety major there appear to be a large number of forms in cultivation, although varying but slightly from the old type. The leaves are very massive, the flowers large, white, with a pale pink tinge.

The Riverston hybrid might almost be classed as a form of

angustifolius. It is said to be a hybrid, but we fail to find any justification for this statement. It is a robust plant, with flowers nearly 4 inches in diameter, white, tinged rose. The petioles are green, and the flower stalks red-spotted.

H. vernalis seems allied to the variety *caucasicus*. The flowers are large, white, tinged rose; petioles green, deeply furrowed; the flower stalk red-spotted. A useful form and a free flowerer. W. Brockbank, named as a fitting compliment to Mr. Brockbank, who has done much to make this family popular in England, is very distinct, remarkable in the flowers being so deeply cupped; flowers about 3 inches in diameter, pure white; petiole and leafstalk sparingly spotted. There are numerous other forms equally desirable, but the above will suffice to show the wealth of hardy midwinter flowers within the reach of all.—D. DEWAR, *Kew* (in *American Garden and Forest*).

SEAKALE "BOLTING."

DURING a thirty-years practice in gardening I have had a good deal to do with the forcing of Seakale, and have for the most part been tolerably successful. I regret to say, however, that recently I have been troubled with it bolting to seed before it was large enough to cut for use. The number of roots bolting would be about 20 to 30 per cent. The roots are usually introduced to the forcing house direct from the open quarter, the temperature of the former ranging 50° at night to 60° by day with sun heat; but I have had them bolting also when blanched among ashes outside with no artificial heat. I do not remember to have seen the subject ever brought up in the Journal, and shall be glad if the probable cause of the annoyance referred to can be pointed out, and a preventive suggested. The seeding roots were brought in from a nursery.—HORTUS.

LIVERPOOL NOTES.

THE WEATHER.—Again I have to record a spell of most severe weather. Snow fell to the depth of a few inches, which remained on the ground, and the frost has been continuous day and night, outside work being entirely at a standstill. Cutting winds from the N.E. have been prevalent. The night temperatures have been—16th, 21°; 17th, 14°; 18th, 10°; 19th, 5°, which is the lowest recorded here this winter; 20th, 22°; 21st, 26°. A rapid thaw took place on Sunday and Monday, and there was not the slightest vestige of the snow and the weather decidedly warmer.

HORTICULTURAL ASSOCIATION.—On Saturday evening last the most successful meeting of the present session of winter lectures was held in the Lecture Room, William Brown Street. The Chairman, Mr. T. White, presided, and there were present Mr. G. Blackmore, Sub-Treasurer; Mr. W. Dickson, the newly appointed Secretary; Mr. R. W. Ker, Aigburth Nurseries; and an excellent attendance of the leading gardeners in the district.

The paper read was on "The Cultivation of the Tomato," by Mr. J. Stoney, gardener to Sir Thomas Earle, Allerton Towers. For many years Mr. Stoney has been a noted grower of Tomatoes, and those who were present had the satisfaction of hearing the subject treated in a thorough manner. So good was the paper that very little room was left for discussion. Mr. A. R. Cox did not quite agree with Mr. Stoney as to compost, which he thought rather too rich, containing as it did old Mushroom bed refuse in addition to a little artificial manure. His own impression was that good loam and wood ashes formed the best material until the plants had set their fruit. This opinion was shared by Mr. Carling, both speakers agreeing as to the excellent paper which had been read. Mr. Bennett, New Brighton, gave some interesting details as to outdoor cultivation pursued by the Cheshire market gardeners, where he spoke of acres being grown with capital results in a warm season. Referring to cuttings, he said they were not so profitable as seedlings, which for indoor cultivation were always raised in November and the ripe fruit gathered in May. The mention of acres of outdoor Tomatoes being grown successfully brought Mr. Sargent to his feet with the remark that he thought Mr. Bennett must live somewhere near the Canary Isles to see outdoor culture successful. Mr. Bennett reassured him that their cultivation was within easy distance.

SULPHUR AND RED SPIDER.—Mr. Sargent asked if anyone present could state if sulphur really killed red spider. His experience was that having heated the pipes in one vinery to about 180°, and having painted them with a slight coating of sulphur, he found the leaves coated and the spider quite dead. His views were generally agreed to by those present.

TOMATOES AGAIN.—Mr. R. W. Ker, in a very able speech, reviewed the doings of those who had charge of the Chiswick Conference, and of the inspection he made of the plants growing in the Society's Gardens. He briefly sketched the native home of the Tomato, stating the climate, and expressed the belief that if the plants were grown on a much drier system that fungoid diseases would be almost nil. As to varieties Hathaway's Excelsior and the Perfection type amongst reds, and a new yellow, "Golden Sunrise," had testimonials of a very high order both as regards flavour, free setting, and handsome appearance. A hearty vote of thanks, proposed by Mr. Blomily, and seconded by Mr. R. W. Ker, was passed to Mr. Stoney for his admirable paper. Mr. Ker, in proposing a similar vote to the Chairman, referred to the very pleasant evening spent, and hinted that considering the educational interest

attached to such meetings, that instead of the meetings being held monthly they should be held fortnightly. This remark met with much applause. The Chairman briefly replied, and the proceedings terminated.—R. P. R.



THE NATIONAL ROSE SOCIETY.

It is rather late to comment on the proceedings at the general meeting of the N.R.S. on December 9th last, but I must plead a long and serious illness as my excuse, as I think there are some matters which are still of considerable interest, and worthy of ventilation. It was a large and noteworthy meeting, and one or two good speeches were delivered; but for "the eloquent aspect" of our Society it was desirable to remain to the dinner and hear our President, Dean Hole, who is truly a past-master in the art of saying the right thing in the best manner, and it was with a painful pleasure, but still with pleasure, that one, who felt he had most sadly mangled his own subjects, and done injustice to his own cause, listened to him. Besides the usual business, there were two subjects for discussion, on each of which there was some interest displayed, and a considerable difference of opinion apparent; and I think it is long since there have been two such well-supported and well-balanced divisions.

On the question of the date of the Metropolitan Show, I still think the report should certainly have been worded as it was amended in General Committee; but there seemed and seems to be a good deal of uncertainty as to what are the functions of the General Committee in dealing with the matters which come before it from the Executive, and whether it may alter them at all; and on the other hand I have lately heard a complaint from a member of the Executive that the General Committee had left them nothing to do. It seems very desirable that the constitution of the Society should be wisely laid and clearly defined, and when any alteration is made I would beg that members at a distance from London should be allowed some power of voting by proxy or letter on any prominent subject like those lately in debate. I did not hear what were the numbers in the division on the question of date, the show of hands looked pretty equal from where I was; but a good many members had written to me that they preferred the later date, but could not come a long distance to vote; and there is a strong feeling arising among the distant country members that if it is to continue to be called a "National" and not a "Metropolitan and Home Counties" Rose Society, they must not be practically disfranchised in general and Committee meetings.

Mr. Grahame spoke temperately on his motion, and he was ably supported in a capital speech by Mr. Bateman, but somehow I made a terrible hash of mine, quite forgetting one of my principal points, and not succeeding in getting my amendment put to the meeting at all. I do not know how this was—the substance of the amendment was cheered and seemed to meet with the approval of the meeting; and, moreover, it was actually, I believe, the decision of the Executive Committee upon the subject; but I was induced to accept an assurance that the Committee would consider it, and though I did my best to show that they could not do so, if Mr. Grahame's motion was carried, I was unable to gain a hearing on that point. The best chairman that ever lived will find it difficult to disentangle matters if he arrives in the middle of the business.

I am informed that Mr. Grahame's motion has been carried out to the full in the new schedules without regard to my amendment, and I am bound to say that, as matters stood, the Committee seem within their rights in doing so. These new schedules not having been, I believe, actually made public, I do not feel that I have a right to comment on their details; but I may say that I have heard from several of the leading amateurs that they have given great dissatisfaction. It is all very well to conciliate the home county members and small growers; but it is worth the Society's while to inquire whether it is also well to alienate the principal men of "light and leading" among the amateurs.

One point, however, in the new schedules has been published in the Journal, and I should immediately have commented upon it if I had not been laid up. All fourth prizes are abolished in both the National schedules—I could hardly believe it—it seemed so entirely retrograde, so foreign, I should have thought, to Mr. Grahame's desires as well as mine. Personally, I feel it, because I am a fourth prize man; fourth prizes I look upon as my special game and prey. But surely there are other enthusiastic rosarians beside myself who from circumstances are obliged to consider the uppermost rungs of the ladders beyond their reach, and have looked upon the National schedules as truly national in encouraging difficult Rose culture by providing fourth places of honour

These prizes have, I heartily believe, been a great stimulus to perseverance and progress with many an amateur who has been inclined to give the whole thing up; yet they are now withdrawn for the formation of classes in which the winning will be merely a question of luck as to who has chanced to enter in them, so that the old system of encouraging improving amateurs by showing them that they have at last gained a place in their class, is exchanged for one in which classes are provided in which they may perhaps win by having hardly anyone against them.

The point that I ought to have mentioned at the general meeting in the debate upon Mr. Grahame's motion is that it will not and cannot, as it is meant to do, place exhibitors in each division on an equality. Why not? Because you cannot make them equal in conditions of climate and soil. I do not think I ever denied that the motives of the promoters were right, but I believe their object to be as unattainable as the equality of socialism. Take my own case for example. When I came to my present abode seven years ago I was very anxious to know what sort of a soil I had for Rose culture. My friend, Mr. B. R. Cant, kindly came over to see me, and with a man and a couple of spades we went about investigating. It was the same everywhere, a foot or so of light sandy soil over pure gravel. At each fresh hole we tried to think, "It is a little better here," but it was not really, and at last Mr. Cant said, "You cannot do it; if you want to grow Roses you must get another bit of land somewhere that is heavier, richer, and better." It will readily be understood that I found this impracticable. So of course the only thing to do was to excavate the beds to a certain depth and put in made soil. I made some excellent gravel paths by-the-by with what I took out. But you cannot under the most favourable circumstances make anything but an artificial imitation of real natural Rose soil, and the best materials I could get in the neighbourhood in the way of clay and loam were hardly of medium quality. And as a result I do not hesitate to say that 3000 Rose plants in my beds, when I have done all I know, do not put me on an equality in any class with 2000 intelligently grown on such soil as Mr. Hall or Mr. Grant used to exhibit from.

Climate and situation have also to be considered. I again, for instance, am in a valley by a river, only 25 feet above sea level; few situations could be worse. Naturally, therefore, I tried to prevent my being thus handicapped by increasing my stock, feeling, that though I could never be first class, I might contend on an equality with second class growers. Superiority in H.P.'s was denied me by my soil; in Teas by my situation; but Mr. Grahame's system, meant as I understand, to promote fair and equal contests between exhibitors, has prevented it in my case; and no doubt also in the case of many others.

I said that I would loyally submit to the decision of the general meeting upon the question, and I have no intention of doing otherwise; but I suppose I may now state my grievances, as my opponents formerly did theirs; and I must keep to my opinion that my amendment, which was intended to test the new system, and see how it worked before final and complete adoption, would have been carried if it had been clearly put to the meeting.—W. R. RAILLEM.

BORECOLE, OR KALE.

GOOD breadths of this indispensable winter vegetable are annually grown in gardens or allotments, as it is the only section of the Brassica family, except the Brussels Sprout, that can safely be relied upon for yielding a supply during severe winters. Therefore its culture should receive that attention which its merits and importance as a winter crop undoubtedly entitle it to at the hands of gardeners, amateurs, and cottagers alike.

The most reliable varieties of the Borecole to grow are the Extra Curled Scotch, Carter's Welsh, Cottagers', and Asparagus Kale. Carter's Welsh Kale is beautifully curled and fringed, being of a rich glaucous green colour, and fine in flavour. The leaves of this excellent variety are, moreover, very useful for garnishing purposes, either in conjunction with the variegated form or by themselves, as a change to the latter.

A small sowing of the Dwarf Curled Scotch Kale should be made in a south border at the end of February, and the main sowing a month later, making a small sowing at the end of April or early in May for supplying plants for yielding pickings late in spring. The seed must be sown thinly, covered lightly, the surface raked level, and then patted gently with the back of the spade to compress soil and seed, and covered with a piece of garden netting supported by a few short forked sticks as a protection from the ravages of birds, the most destructive of which are chaffinches. The plants must be treated properly from the beginning—that is, they must be pricked out a few inches apart every way in a sheltered position out of doors, and finally transplanted before becoming crowded in the beds. Thus treated plants of sturdy consolidated growth are secured. In pricking out the young plants, and again in transplanting, supply water, in the absence of rain, to settle the soil about the roots. However, in each case the work is best done in showery weather, as the plants can be lifted better then.

Borecole will succeed in any ordinary soil which has been enriched with short manure, and in an open situation; but the most satisfactory results are secured from plants growing in a rich loamy soil, which had

been well manured for the previous crop. In finally transplanting set the plants 2 feet apart in drills, the same distance from one another, and about 3 inches deep, letting the plants down to the bottom leaves in holes made with the setting-stick, and rendering the soil moderately firm about them in planting. Cottagers' Kale should be given from 6 to 9 inches more room every way, as it is a tall and strong-growing variety. Before planting Borecole, or, for that matter, any of the Brassica family, the roots should be dipped in a "puddle" made preferably of clay, sufficiently thick to adhere to the roots, and into which a double handful of fresh soot has been stirred. This will protect the roots from the attacks of grubs, which are sometimes very destructive.

All the after attention necessary is to draw a little soil up to the plants on each side after they have started well into growth, and to keep them free from weeds. If dry weather prevail at planting time supply water until the roots have taken to the soil. If the latter is inclined to be heavy once will be sufficient, but should it be of a light texture several waterings will be necessary. These remarks are equally applicable to plantings of Cabbage, Cauliflower, Brussels Sprouts, and Broccolis.—H. W. WARD, *Longford Castle*.

COTTAGE GARDENS AND ALLOTMENTS.

THIS formed the subject of discussion at last Thursday's meeting of the Newcastle and District Horticultural Mutual Improvement Society, held at the Lit. and Phil., under the chairmanship of Mr. Heslop. Mr. Bernard Cowan of South Shields was the introducer, and in the course of an interesting and practical paper said the charge could not be brought against gardeners that they had tried to keep the knowledge of their profession from the general public, and he thought that the hundreds of amateurs in the northern counties, whether pitmen or any other class, would be ready to admit that they had been taught to grow flowers, &c., by some friendly gardener. It behoved them to give all the practical hints they could in the management of cottage gardens and allotments. The great agricultural depression of past years and the fact that a large amount of land was going down to pasture, was receiving the serious consideration of statesmen, and it was no doubt one of the burning questions of the hour. Now that the allotment system had been recognised he thought they might fairly expect some further legislation on the land question soon, and it was to societies like theirs throughout England that he ventured to think the public would look for advice and guidance as to what was the best to grow. He trusted the time was not far distant when a conference of horticultural societies would be convened so as to watch legislation on this subject. Some southern County Councils had employed gentlemen to give technical instruction in gardening; others had adopted the same course, and it was to be hoped that the northern Councils would soon follow the lead.

In 1890 there were in England 46,200 acres of land devoted to the cultivation of small fruits, but last year this had advanced to 58,700. Small fruit-growing was increasing in every county in England, and there was now more land under it than there was devoted to the growing of Hops. In Northumberland during 1890 there were 401 acres under small fruit, and in 1891 this had risen to 440 acres. The acreage in Durham was 263 in 1890, and 337 in 1891. Grouping the five northern counties, they found that there were 3120 acres laid out for the growing of small fruit in 1890, and 3970, or an increase of 85 acres, in 1891. This was due, no doubt, to the impetus given by the Allotments Act and the energetic action of the British Fruit Growers' Association. It was necessary for them to do all they could towards keeping the industrial population from migrating to the towns in such large numbers, and to this end he would suggest that they should approach the County Councils with the object of securing technical instruction in gardening for the rural population, and that examination should be held. Then they should form a committee of inspection or survey for allotments or cottage gardens to give the people advice as to what to grow, and something should be done in the way of co-operation for the disposal of the produce. So far as the rural districts were concerned, he would go in for building jam factories on the co-operative system, and, if there were a large number of allotments together, these could be worked on a small scale, and the fruit raised could be converted into jam rather than be allowed to run to waste. In addition to this prizes ought to be offered for the best treatise on what they could best grow in the northern counties, and the work should be printed and circulated at a price to cover cost of production. There were other things that might be done by their societies to assist in this direction when they got further legislation, but in the meantime they should do what they could. He did not see his way to any good scheme unless it was one that would enable the allotment holder to become the absolute owner of the land on a system similar to that adopted by the building societies.

A short discussion followed, and Mr. Cowan was heartily thanked for his contribution.

EUPATORIUMS.

USEFUL winter and spring flowering plants are the two species of Eupatoriums—viz., Eupatorium Weinmannianum and E. riparium. Their graceful appearance amongst the other occupants of the greenhouse or conservatory when in flower makes them very desirable to cultivate. They may either be staked erect or trained on flat or small balloon-shaped trellis, the slender growths of the plants rendering them most suitable to the latter style of training. Cuttings of the young

shoots may be inserted during the present and following months. Any sandy soil with a sprinkling of silver sand will suit them. Crock some 4-inch pots, and insert four or five cuttings in each pot. Placed in a warm house they will soon root, when they may be placed separately in small pots, using loam three parts and one part leaf mould, with sufficient sand to keep it porous. Keep them in a growing temperature, and pinch the points out when 6 inches high. About the end of May they may be placed into their largest pots, which must not be too small, as the plants are strong rooters. The compost may consist of loam three parts, well-decayed manure and sand. When all danger of frost is over, they may be plunged out of doors and kept pinched, the last pinching taking place about the end of July. Weak liquid manure at intervals will greatly add to their well being. As frost appears take them to the shelter of a greenhouse, where the flowers will soon commence expanding, and prove of great value for decorative and cutting purposes, the season of flowering extending over a considerable period.

E. Weinmannianum has sweet scented flowers, and is the first to bloom. E. riparium follows, and is at present beginning to open its flowers. After flowering, they should be cut well back if they are to be grown into a large size. If not, cuttings may be struck annually, following the same routine of treatment. In conclusion, I may mention that E. riparium, if placed on a layer of ashes in a cold frames when flowering is over, will produce seedlings in abundance.—R. P. R.

CHRYSANthemum MRS. ALPHEUS HARDY.

MUCH has been written upon the culture of this most beautiful variety, and many are the methods which have been adopted to bring it to perfection; but alas! how many have been the failures and disappointments. It will be well for us who are desirous to do better in the future than in the past, to consider which will be the best method to adopt, so that we may obtain blooms of greater depth and solidity. Some growers plant it out in the greenhouse in a suitable position, keeping it as near the light as possible to prevent its being drawn, and with good results; others grow it in the ordinary way, but use a lighter compost, and do not place it in the open until the first or second week in June, housing it again about the second week in September, this in my opinion being as yet the most successful way. But is there not some method we may adopt by which to give it a stronger constitution, and so make the blooms retain their freshness for a longer period? As yet, when the flowers are fully expanded, they seldom keep in perfection longer than a week or ten days, owing, no doubt, to the lack of substance in the florets. It occurred to me we might possibly obtain the desired effect by grafting it upon Etoile de Lyon or Stanstead White, both being robust varieties, and my idea was confirmed by Mr. Molyneux, who in answer to my question, thought it advisable to try grafting it, but preferred Elaine to graft upon as being more "in kind" than the two varieties mentioned. Such advice as this will, I am sure, be welcomed and adopted by those who are desirous to obtain still better results with this variety.—H. P., *The Knoll Gardens, Wimborne*.

MICRO-ORGANISMS.

PEOPLE who have never studied nature through the microscope have but little true conception of the real living world around us. The number of plants and animals with which we are familiar through the naked eye is insignificant when compared with the countless myriads of living bacteria which surround us, and can be seen through a powerful microscope.

The Dutch naturalist, Antonius Van Leeuwenhoek, as early as 1675, observed and studied bacteria, but our knowledge of these micro-organisms have been mostly attained during the last thirty years. In 1848 Fuchs observed these minute bodies in animals dead from septic infection, and in 1849 and 1850 Branell and Davaine observed them in the blood of sheep dead from anthrax; but no efforts seem to have been made to establish any genetic relation between bacteria and disease until Pasteur's work on Fermentations appeared in 1861. Since that date, remarkable and interesting discoveries on bacteriology have been made by Pasteur, Koch, Klebs, Cohn, Virchow, Burdon-Sanderson, Tyndall, and many others, from whom we have been given convincing proof of the validity of the "germ theory of disease."

It is now almost universally admitted that bacteria, or microbes, belong to the domain of botany, and are the simplest and minutest organisms in the vegetable kingdom. The great majority of these micro-organisms are harmless to the human system, and are beneficial agents in nature; but some of them are infectious, the diseases that they produce being called zymotic, in consequence of their course resembling a process of fermentation. Such diseases as cholera, typhoid fever, diphtheria, scarlet fever, and erysipelas belong to this class. As long as the cause of these diseases was undetermined, the science of their medical treatment was groping in the dark, and it is only since the genesis of many of the most dangerous diseases has been traced to micro-organisms that the right treatment of them has become probable. Since these are microbe diseases, it may be well to state briefly a few facts concerning the germs of disease. Many bacteria are not more than one-fifteen-thousandth or one-twenty-thousandth of an inch in length, and it has been estimated that it would require four hundred million of them of average size to cover one square inch of surface.

Bacteria are present in many kinds of matter. They always inhabit the air we breathe and the food we eat, and even the purest natural

water is never free from them. A cubic centimetre of average spring or deep well water generally contains from several hundred to several thousand of them, while a single wineglassful of polluted water is often found to contain more bacteria than there are people on the face of the earth. Bacteria are indeed so abundant in nature and so difficult to separate from living tissue, that when our fingers, even after a thorough washing, have been brought in contact with the biologist's sterilised microscope slide, a dozen or more groups of them can be cultivated from it. And they are the most prolific organisms of which we have any knowledge, for in its multiplication a single bacterium may become the causative parent of sixteen million five hundred thousand descendants in a day. Bacteria are classified according to their shape and structure. Thus the micrococci are composed of single, spherical, or oblong cells; the streptococci are composed of cells arranged in chains; the bacilli are rod-like forms, while the spirilla are of a cork-screw or spiral shape.

Although our most dreaded diseases are produced by bacteria, the harmless forms of these micro-organisms have their beneficent uses in the economy of nature. Through their efforts sugar is converted into alcohol, and, from the carbonic anhydride evolved, the cork of the champagne bottle is discharged with almost explosive violence. While one class is thus engaged in making alcohol, another class is fermenting it into acetic acid; and still other classes are servants to the baker in raising his bread.

It is to bacteria that we owe the phenomena of fermentation and decay. They are the common scavengers of the earth. It has long been known that plants and animals bear a reciprocal relation, each producing the food that is required by the other. Plants take up simple compounds, like water, carbonic anhydride, and ammonia, and elaborate them into complex compounds suitable for the food of animals. Animals, on the other hand, break down these complex substances and furnish them again in the simplest forms available for plant food; but still there is a large number of animal products that are not thus reduced, and not suitable for plants to assimilate. "These it is the function of bacteria to transform and prepare. They are the cooks of the vegetable creation. Every fermenting manure heap, every rotten vegetable and animal is a great kitchen in which this preparation of vegetable food is going on. But for the constant beneficent work of the bacteria the world soon be choked up with the undecomposing remains of plants and animals; and vegetable and animal life must alike perish. They are at once, then, the scavengers, caterers, and cooks of nature, and as no living beings are so widely distributed, so no living beings are more beneficent in their work."

Wherever bacteria are found abundantly, decomposing nitrogenous organic matter is always present, and Pasteur has shown that they do not multiply without a putrefactive environment, but remain infertile until they perish. Bacteria of putrefaction and infection flourish most abundantly in a neutral or an alkaline menstruum, such as is generally found in decomposing sewage matter and the effluvia from sewers; but they are readily destroyed in acid solutions. It has also been observed that the bacteria producing acid fermentations perish in alkaline liquids.—FLOYD DAVIS, M.Sc., Ph.D., *Des Moines, Iowa* (in the *Journal of Microscopy*).



FRUIT FORCING.

VINES.—*Early Forced Vines in Pots.*—These require generous treatment, such as surface dressings of rich material, well decayed manure and lumpy loam, with a sprinkling of steamed bonemeal and copious supplies of liquid manure in a tepid state, keeping the plunging material about the pots well moistened with the same to insure the spread of the roots into it and augment the support of the Vines. With the roots coming over the rims and from the bottom of the pots the Vines make plenty of foliage, which should not be kept too closely pinched, as there is nothing like plenty of feeders to secure well swelled berries.

Early Houses.—Planted-out Vines started early in December have the Grapes swelling and approaching the stoning period; they will require careful treatment in ventilating, affording a little air at 70°, increasing it with the sun heat, keeping this through the day at 80° to 85°, closing by or before the temperature recedes to 80°, and if it advance to 85° or 90° all the better. Avoid cold draughts, they are prolific of rust and cripple the foliage. Keep inside borders well supplied with tepid water or liquid manure, and maintain a genial condition of the atmosphere by damping available surfaces two or three times a day, especially at closing time.

Grapes in Flower.—The temperature ought not to be less than 60° to 65°, with a rise of 10° to 15° by day. Lessen or discontinue the syringing, though moderate humidity is desirable for the benefit of the foliage, preventing condensation of moisture by a little ventilation constantly, taking care not to cause a draught. Shy-setting varieties

require careful fertilisation, all varieties well repaying the labour by producing finer bunches of evenly formed berries. Afford Muscats in bloom a night temperature of 65° to 70°, and 10° to 15° rise by day; if the bunches are numerous a better set will be secured by the removal of the surplus bunches before they flower. Duplicate bunches only take support from those which are ultimately left for the crop.

Thinning Grapes.—Keep this operation well in hand, thinning Black Hamburgs and other free-setting varieties as soon as possible after flowering, but the shy-setting Muscats and others should be left until the properly fertilised berries can be distinguished by their taking the lead in swelling. Thinning requires the exercise of a little judgment, taking the character of the kind and capabilities of the Vines into consideration. Sufficient berries should be taken out to allow of those left attaining their full size, without wedging or crushing; retaining sufficient to prevent the bunches falling out of shape when cut and laid upon the dish.

Succession Houses.—Attend to disbudding as soon as the best breaks can be discerned, proceeding gradually. Stopping may take place one, two, three, or four joints beyond the show of fruit as the space admits, but the more leaves beyond the fruit having exposure to light the more certain is it of being well supported. If the space is limited stop at the second joint, or even one beyond the bunch; but where space admits stop the growths at the third or fourth joint beyond the bunch, and then allow the laterals to extend until the available space is covered with an even spread of leaves, then keep closely stopped. Tie the growths down before they touch the glass, bringing them down carefully, as the growths of vigorous Vines are liable to snap. Allow plenty of room in the ligatures for the swelling of the shoots. When the bunches show increase the temperature to 55° to 60° at night, 65° by day artificially, 70° to 75° from sun heat, and an increase of 5° to 10° from that source after closing.

Late Houses.—If late Vines are not yet cleared of Grapes it should be done at once, pruning the Vines and dressing the cuts with patent knotting or styptic, shellac dissolved in alcohol being excellent for this purpose, and cleanse the houses and Vines, removing the loose surface soil from the borders, supplying fresh loam, keeping the house as cool as possible. Examine Grapes in rooms, removing any decayed or mouldy berries, as one soon spoils a whole bunch. Maintain the temperature about 40° to 45°, and the room being dry the Grapes will keep sound and give little trouble. Muscats, Lady Downe's, and other late varieties, from which the Grapes were cut about the New Year, may now be encouraged to grow, as the Vines starting early in March have a chance to mature their Grapes thoroughly before the cold and sunless autumn weather, and the fruit keeps much better ripened not later than early September, late ripened fruit being in every way less desirable. The inside borders must be brought into a thoroughly moist state by the application of water at a temperature of 80°, following with rather thick but tepid liquid manure when the Vines are weak or been heavily cropped. The outside borders will only need the protection of a little rather short litter to prevent chill from frost, cold rains, or snow.

PEACHES AND NECTARINES.—*Earliest House.*—Continued sharp weather necessitates recourse to fire heat more than usual at this season, yet no more should be used than is absolutely necessary to maintain the trees in steady progress. The days have been bright and the trees look well, though the fruit is later than usual. A night temperature of 50° to 55°, and 60° to 65° by day artificially, with 5° to 10° more from sun heat, especially after closing, will keep the trees in steady progress. Disbud carefully and in accordance with the growth. When this is strong the whole of the foreright shoots may be taken off at once, and some of the side shoots pinched back to form spurs on the extension, but not on shoots that will be removed after the fruit is gathered, retaining the best break from the base of the several shoots now bearing, and this must have room for extension with full exposure to light, and a shoot must be reserved on a level with or above the fruit to attract the sap to it, pinching such, when not required for extension, at the third leaf, and to one afterwards as made. Trees that have set heavy crops of fruit should have the least promising removed, especially those badly placed or on the under side of the trellises, and to help weakly trees afford liquid manure, syringing the borders occasionally with weak tepid liquid, which will improve the colour of the foliage and strengthen the growths. Syringe in the morning and afternoon with water a few degrees warmer than the house, and always sufficiently early to allow the foliage to become dry before night. On dull days omit the afternoon syringing, also the morning when cold and sunless, damping the borders and paths instead. Ventilate from 60°, increasing with the sun heat, taking care to avoid cold draughts and sudden depressions of temperature, which cripple the foliage and may cause the fruit to fall. Inside borders must be duly supplied with water, and outside borders protected from cold.

Second Early House.—Trees started at the new year have set the fruit, and syringing will need to be resorted to after this is effected, which will assist them to cast off the remains of the flowers. Syringe, however, cautiously in dull cold weather, as it only weakens the growths, and has a tendency to induce wood at the expense of the fruit swelling. A night temperature of 50° is safe in severe weather, and 55° by day, 5° more in mild weather, with 5° to 10° rise from sun heat. Disbud gradually and carefully, practising it when the fruit is fairly swelling, and when begun follow it up a little each day. Where there is a thick set of fruit remove the smallest and worst placed by degrees. See that the borders are properly supplied with water.

Trees Started Early in February.—In the house started this month the flowers are well advanced, and should be closely examined for aphides. If any are present fumigate, having the trees dry, and repeat it on two or three consecutive evenings. This will keep the trees free from the pests until the flowering is over. When the anthers show clear of the corollas cease syringing, maintaining a genial condition of the atmosphere by damping available surfaces in the morning and early afternoon. Turn on the heat in the morning to secure and keep a temperature of 50° by day, ventilating from 55°, allowing an advance to 60° or 65° with a free circulation of air, employing fire heat only at night to keep the temperature between 40° and 45°. Where there is a great show of blossom remove that on the under side of the shoots. Supply tepid water to the border if it be in need of moisture.

Houses to Afford Fruit in Late July and Early August.—These should be closed early in March, syringing twice a day until the buds show colour, when it should cease. Maintain a temperature of 50° by day, and with ventilation from that point an advance may be allowed from sun heat to 65°; 40° to 45° is ample at night. If the border is at all dry afford a thorough supply of water, repeating as necessary. Where the blossom buds are superabundant remove those on the under side at the back of the shoots, drawing the hand the reverse way of the growths. Fumigate if there be the least trace of aphides.

Latest Houses.—These are often unheated and have the roof lights fixed, both great mistakes, as the buds swell early, and there is little more safety for the blossoms in a cold wet spring than outdoors. With the roof lights off the buds are quite dormant, and they need not be replaced until the buds commence swelling freely. Under fixed roofs ventilate freely, and where there is heat merely exclude frost. Heat is essential in cold localities, as the blossom is not safe from spring frosts and the fruit does not ripen perfectly if the season be cold and sunless. Besides, a gentle heat during flowering does much towards securing a good set, and in autumn artificial heat is sometimes necessary to ripen the fruit and wood. Indeed, the latest varieties cannot be depended on to produce good fruit in cold localities without aid in backward seasons, and some of the latest sorts are noble in appearance, good in quality, a gentle heat making great difference in the fruit as regards its thorough ripening. See that the borders are well supplied with moisture. Those having been exposed are thoroughly moistened through to the drainage and will not require watering until the fruit is advanced in swelling, besides such trees never cast their buds when they should be developing their flowers.

THE KITCHEN GARDEN.

EARLY CELERY.—If Celery is wanted for the early shows no time should be lost in sowing seed of one of the large white forms, notably Wright's Giant White, and it is also advisable, in many instances, to raise an early batch of plants to blanch for home consumption in September. Sandringham Dwarf White, White Gem, and Veitch's Superb White are among the most reliable of the white varieties, Veitch's Early Rose being also exceptionally good for the earliest crops. Sow the seed somewhat thinly in pans of fine soil, plunge or set on a brisk hotbed in preference to dry warm stages, cover with glass, shade heavily, and keep uniformly moist till the seed has germinated. A shelf in a well-heated house is the best place for the plants till they are large enough to prick out into boxes of good soil, and subsequently they must be kept growing steadily and sturdily, a check from sudden exposure to low temperatures, or from dryness and poverty at the roots, usually having the effect of causing premature bolting.

LEEKs.—Seed of the Lyon or other large forms of Leek is usually sown by the most successful exhibitors early in February, and in heat, the plants from first to last being treated very much as Celery is grown to perfection. If required extra fine for home consumption it is also advisable to raise sufficient plants early and in heat, ultimately pricking these out in boxes or frames, and moving carefully from these into well prepared trenches. If only wanted for flavouring soups there is no need to take so much trouble either with the raising or after treatment of the plants. Take the first favourable opportunity of sowing seed on an open border, and if the seedlings are not unduly crowded they, when strong enough, may be planted direct where they are to grow.

EARLY TURNIPS.—Turnips are already becoming scarce. They were none too plentiful in the autumn, and those left on the ground were badly injured by severe frosts. In many cases, therefore, it may be advisable to forward a few dozen bunches under glass. They are not amenable to hard forcing, but the Early Milan can be forwarded considerably in frames with or without the assistance of a mild hotbed. Make the soil somewhat firm, and sow the seed thinly and broadcast, covering with more sifted soil. Keep the frame close and dark till the seedlings appear, then admit all the light possible, also giving air freely, drawing off the lights whenever the weather is mild. If the mistake is made of sowing the seed too thickly the plants must be thinned early. Leave them not less than 3 inches apart, and commence drawing for use directly the forwardest roots are near the size of a crown piece in diameter, the rest being greatly benefited by this early removal. Frames being scarce, a pinch of seed might be sown thinly along the light fronts of unheated or not forced Peach houses and fruit cases, good early dishes of Turnips being sometimes had from these positions without much detriment to the regular occupants of the borders. Rough frames could also be constructed on a warm border with the aid of boards and stakes, these with mats thrown over during cold nights serving to protect and forward Turnips considerably. Unless some such protection can be

afforded, it is useless to sow Turnip seed in the open before the middle of March.

PARSNIPS.—If extra fine roots are required early in the season, seed ought to be sown in February or as early as the state of ground permits March, but for home consumption smaller roots are preferable, they also keeping best. For the former the ground should be deeply worked, good solid manure being buried at the bottom of the second spit or where the taproots only will reach it. Early contact with solid manure or even lumps of soil is apt to cause forking, and Parsnips for home use may well, therefore, be sown on ground that was well manured for a previous crop and deeply dug. Nor is it advisable to sow seed much before the end of March, and if the ground cannot be got into a finely divided state to a good depth so early as that even, defer sowing till April. In each and every case the drills may be drawn 15 inches apart, thinning the plants if large roots are desired the most freely. The Student is a very good variety for all purposes.

SPRING CABBAGE.—These have been badly cut in the colder positions, but there are far more promising breadths of plants to be seen than was the case last February. They cannot well be had too early, the most forward hearts frequently being more appreciated than any sent to the table during the rest of the season. If there are any weeds among the plants clear the ground of these, and then give a good surface dressing of soot or some kind of special manure, well stirring it in to the surface of the soil with flat hoes, and directly this is washed down to the roots more rapid growth of the plants will result. If the plants are too tall draw the soil up to them on both sides, and into the furrows thus formed midway between the rows quite strong liquid manure or sewage may safely and advantageously be poured. Should there be any blanks in the rows make these good from the seed beds, a few more rows being also put out if there are plants sufficient for it. Should the losses during the winter have been very heavy sow seed of a small quick growing variety, Ellam's Dwarf, for instance, in pans or a box of soil, and place in gentle heat to germinate. Keep the seedlings growing steadily, a warm shelf being a good place for them, and early prick out in boxes or pot off, the aim being to get them out into the open ground as quickly as possible consistent with safety. It should be remembered that early and good hearts can be had by growing the plants in rough frames or under handlights, like Cauliflowers are forwarded, and in time of scarcity they pay well for the trouble.

PARSLEY.—As usual the choicer strains have fared badly during the winter, and Parsley is nearly as scarce as at this date last year. It is weary work waiting for the plants raised in the open ground to yield abundance of strong leaves, and such is the demand for Parsley that something ought in many cases to be done towards forwarding a fresh supply. Any roots that have escaped may safely be lifted and gently forced, either in boxes or on mild hotbeds in frames; and a number of seedlings ought also to be raised in heat. If a frame can be spared set this on a mild hotbed. Prepare as for Carrots, sow the seed thinly in drills 5 inches apart, and keep close and warm till the seedlings appear. Force gently and early thin, dibbling the thinnings out on a warm border—the surest method of forming a good bed of Parsley. Those left in the frame will grow strongly and yield abundance of fine leaves.

PLANT HOUSES.

Liliums.—The earliest plants of *L. Harrisii* are advancing rapidly. Watch for aphides, and fumigate at once if they appear, as if they are allowed to become established they quickly injure the foliage and ruin the plants. As soon as the flower buds are visible give them a temperature of 50° to 55°. If hurried before they show bloom they run up tall. Keep later plants close to the glass and perfectly cool. Bulbs of *L. eximium* that were potted some time ago and kept in a cool house will be ready for the plunging material to be removed. If any were placed outside and covered they must be protected directly they display signs of coming through, or they may be damaged by frost. It is a good plan to place them in frames where they can be protected from frost. All in active growth should have a little artificial manure applied to the surface of the soil.

Imantophyllums (Clivias).—For purposes of decoration these are most useful in from 6 to 8-inch pots. Large plants, after they are forced into bloom, may be divided and potted singly in fibry loam, sand, and one-seventh of manure. After potting place them in a vinery so that they will start into growth. Good varieties as they come into flower should be fertilised, and seed saved to increase the stock. Propagation by suckers is a slow process. When the seed is ripe it must be dried before it is sown or it will decay. A good stock of the old *miniaturum* will be found invaluable during the winter and spring; they are easily brought into flower in Peach houses and vineries that have been started. Suckers root freely even if they have no roots attached to them.

Salvia gesneriflora.—Plants that have been kept cool will be showing their flowers; these may be advanced considerably by placing them where the temperature will not fall below 45° or 50°. This variety is useful not only for the conservatory but for cutting, and can be brought into flower in succession. When large plants are needed for another year cuttings may be inserted as soon as growing ends that are not showing flower can be detected.

Chrysanthemums.—Those intended for large blooms and rooted in small pots under cool treatment will be sturdy plants. These may be placed into 5-inch pots and arranged close to the glass, where they can have air freely when the weather is favourable. Care should be taken to keep them safe from frost. Those intended for bushes must have their points removed to induce them to branch. For decorative pur

poses cuttings may still be inserted; they root freely in boxes covered with a square of glass if placed in a vinery or Peach house that is kept close. A good batch of early flowering kinds will be found useful if rooted at the present time.

Bouvardias.—If an increase of stock is needed prune old plants that have rested, shake the soil from their roots, and cut off some of the strongest. These, if cut into lengths, two or three pieces being placed in each small pot and plunged into brisk heat, will soon make plants. The old specimens may be repotted in as small size as possible, and placed in gentle warmth until they break into growth.

Solanums.—Prune all those that are past their best and start them into growth in a vinery or Peach house. If aphides have existed upon the plants dip them in weak tobacco water before placing them into warmth. Seedlings should be potted singly and grown in heat until they are ready for larger pots.

Fuchsias.—Young plants that have been wintered in 3-inch pots can be placed into 5-inch size and supplied with upright stakes. In a temperature of 55° they will grow rapidly, and early in the season will be ready for decoration. Old plants that have started into growth may have the old soil shaken from their roots and repotted in smaller pots. When the young shoots have made a few inches of growth remove the points to induce them to branch. Other plants may be started into growth by placing them in a warm vinery or Peach house. Use for these plants good fibry loam two parts, one part of leaf mould, one part of old Mushroom bed refuse, and a little sand. Water carefully until the plants are rooting freely.

Pelargoniums.—The earliest plants need not have their shoots pinched again. If the plants are cut back and the shoots crowded tie them out carefully; bring the strongest towards the rim of the pot. The very weakest may be removed, while the remainder may be allowed to grow upright. Keep these plants close to the glass and in a cool house. Pinch the points out of later plants; they will then make strong growth when they start again. When repotting is needed it should be done at once, the soil being pressed firmly into the pots, and may consist of fibry loam, sand, and one-seventh of decayed manure. It is a good plan to mix a little artificial manure amongst the soil. Water the plants carefully, and do not syringe them. Aphides soon injure these plants if not destroyed immediately they appear.

Erica hyemalis.—Plants that flowered some time ago and were cut back will be showing signs of starting into growth. These may be repotted, only remove the drainage from the base and press the new soil firmly round the balls. If the plants have been in a cool house return them to that structure. Syringe amongst the pots on fine days, but do not water the plants as long as they can possibly be kept without. They should not, however, be allowed to become dust dry before water is applied.

Epacris.—Cut in closely all plants that have flowered, and allow them to start into growth where the temperature does not exceed 45°. If others are needed in flower they will come forward quickly in a close house 5° or 10° warmer than the structure in which they have been housed.

Hardwooded Heaths.—Watch for mildew. If it makes its appearance dew the plants with the syringe and dust with flowers of sulphur. Leave this on for a few bright days, and then wash it off with clean water. Admit air freely, and, even if fire heat must be resorted to, avoid a close stagnant atmosphere. Stake and retrain any plants that need attention; be careful to place the stalks into the holes from which the old ones have been drawn out. Use no more stakes than are absolutely necessary; nothing does these plants more harm than filling the pots full of stakes. Draw towards the rim of the pots the strong shoots of young plants, and pinch any that are unduly taking the lead. If the object is to grow the plants on do not allow them to come into flower. The flower buds must be removed as soon as they are large enough.

The doorways also being in no case wider than three-quarters of an inch (in most cases half) the rush of cold air is reduced to the lowest compatible with the comforts and necessities of the bees.

For this country the foregoing embraces all that is necessary for successfully wintering bees. It is now about thirty years since my theory of wintering bees appeared in the *Cottage Gardener*, which was practically the same as here written, and I have never seen occasion to alter my opinion, although volumes have been written on the subject, and never more than during the past eighteen months.

DRYNESS.

To secure dryness without draughts is the secret of wintering bees. The modern methods of feeding candy above and top feeders, and of leaving space over the combs, are all of them retrograde; and, of course, the same holds good with double-cased, or any hive that allows damp to lurk inside. I shall be obliged to bee-keepers who may send to this Journal, or to my own address, particulars of how their bees have withstood the severe frost, together with their mode of wintering.

OVERHAULING.

Hives covered with dried grass, as I have described, need not be disturbed until supers are placed on; but those covered wholly with cloths or cushions the moment the weather is favourable should remove them and dry them thoroughly before replacing them, or substitute dry ones. Cloth or cushions do not, like dried grass, permit the perspiration from the bees to pass off in its gaseous form, but condenses it, and soon becomes a sodden mass.

FEEDING.

Until the weather is settled it will injure bees to attempt feeding, or to disturb them in any way. Where they have been so mismanaged as to require it, a piece of candy or sugar and honey kneaded together and placed over the cluster, top of frames, will tide them over. If the weather will permit, the best thing to do is to feed them in small quantities from below.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. & J. Birkenhead, Sale, Manchester.—*Catalogue of Ferns and Selaginellas*.

L. Delaville, 2, Quai de la Mégisserie, Paris.—*List of Seeds*.

T. Smith, Daisy Hill Nursery, Newry.—*Catalogue of Hardy Aquatics*.

THE BEE-KEEPER.

APIARIAN NOTES.

Up till the 18th inst. we never had bees that wintered more satisfactorily. What effect the cold may have on them remains to be seen; but I am hopeful, so far as my own are concerned, they will be uninjured, my reasons being the hives are dry within. The single woollen quilt, and over it from 4 to 6 inches of dried grass, permit the perspiration from the bees to pass upwards and through it while in a gaseous state, no condensation taking place until it comes into contact with the air above the covering. Then the sides of the hive, being protected, are warm, the moisture does not condense upon them, and is either carried out of the doorway or falls upon the under floor. Further, the interior of the hives being filled with comb prevents a large volume of air being present, and the hive in consequence is not robbed of heat.



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post and we do not undertake to return rejected communications.

A Garden Maze (Cherry Blossom).—In olden times mazes were more common than they are now. We believe there is one at Hampton Court, but we are not aware of any others in London parks or gardens. If you write to Mr. A. Graham, Garden Superintendent, Hampton Court Palace, Kingston-on-Thames, he will be able to tell you if a plan of the maze is published in any guide book to the Palace and grounds.

Low Temperatures (J. T. M.)—There is much uncertainty about the records of very low temperatures, as thermometers vary greatly, and unless carefully tested occasionally they are very misleading. You will see in our Notes and Gleanings this week a paragraph from a correspondent, stating that the lowest temperature observed was 7° below zero, and lower temperatures have been recorded in past years.

Gloxinia Leaves Diseased (T. L.)—The leaves are "rusty," as the result of some sudden check, the fungus being an accompaniment only. Early started plants are very liable to have their young leaves browned, but fresh growth usually comes all right after the weather becomes warm and settled, Gloxinias being rather impatient of sudden atmospheric changes. There is no remedy beyond removing the affected leaves and burning them, maintaining a moist atmosphere without wetting the foliage; the plants then soon outgrow the disease.

Painting Hot-water Pipes (B. M.)—We know of no better mixture for painting hot-water pipes with than lamp black and boiled linseed oil. If mixed thin you can apply it with a brush. A much quicker process is to take a piece of old canvas, as much as a man can conveniently hold in his hand, and dip it into the paint and rub it well into the pipes. This is rather a dirty plan, and some might object to it on that account; but the work can be done quite as well as with a brush; besides, the under sides of the pipes cannot always be reached with a brush.

Stephanotis (S. B. G.)—You had better start your plant in heat without further delay. If you have during the past month or two kept the plant drier and cooler than an ordinary stove temperature it will soon be excited into growth if introduced into the stove. If started now an ordinary stove temperature will suffice, and it is always wise to start even a little too early than to push the plant forward in too brisk heat. Should your plant during the month of June be developing too rapidly you can easily retard it by placing it in a lower temperature; this, when time will allow, is an advantage, for the flowers will possess more substance, and be much larger and more highly scented than if forced out in sharp brisk moist heat.

Chemical Manure for Mixing with Soil for Cucumbers (S. G. R.)—All the advertised fertilisers are useful, and would answer your purpose, if the instructions are followed. For safety against eelworms we know nothing better than mixing the wood ashes with the "heated turf," omitting the manure and half-decayed leaves, relying on feeding by the surface. There is no good whatever in submitting loam without an analysis, and then the need of chemicals or otherwise is not very apparent; but adding horse droppings and half-decayed leaves to the common garden soil would improve it for Tomatoes, and may be all that is required, with judicious top-dressings. It is usual, however, to add some chemical manure to the soil. Each of the numerous mixtures advertised has some special merit.

Tomatoes for Indoor and Outdoor Culture (H. T. H.)—Of the varieties you name Conqueror is a large early red variety, ribbed yet handsome, and very prolific. It is hardier and a freer setter than Hathaway's Excelsior, but this is more handsome, less ribbed, smooth in outline, and a great cropper under favourable conditions. Ham Green Favourite may be said to have taken the foremost place among Tomatoes for its free cropping properties and general usefulness, the fruit being of medium size, smooth, handsome, and the colour a full Tomato red; the plant is free and robust in growth, with large leaves, setting freely, and not liable to become diseased, though that largely depends on culture, climatic conditions, and soil. Conqueror seems to be the variety you have had before, and it is good for the purposes you require; but if you need a handsomer variety Ham Green Favourite would probably meet your views.

Cleaning Stone Pillars (C. W. G.)—You will find nothing better than muriatic acid for cleansing your stone pillars. The acid should be diluted with water, but if the green has become thoroughly established on the stone you had better use the acid almost pure at first, which will destroy the whole of the green, and the pillars in a few minutes can be washed white. If the pillars are not very badly affected equal parts of the acid and water will clean them thoroughly; but this entirely depends upon the stone, whether of a hard or soft material. If hard the acid must be used stronger than is necessary when the stone is of a soft nature. The diluted acid can be applied with an old scrubbing brush, but care must be taken that it does not get upon your clothes, or it will burn and destroy them. Chloride of lime mixed with water will also clean stone, but when it is of a hard nature it is not so effectual, besides leaving an unpleasant smell for days afterwards, which is not the case with muriatic acid.

Farmyard Manure (J. P.)—To your question "What do we gain by the application of farmyard manure?" our reply is, Better crops of everything, unless the soil is rich enough for supporting a maximum yield. Good and well prepared farmyard manure contains practically all that is needed for the support of crops, but there is as much difference in the value of manure heaps as between greasy dish-washings and good beef tea. If the gases generated in manure heaps are dissipated in the atmosphere and the liquid portion permitted to escape to the drains the chief manurial virtues are wasted, and what remains is little more than a husk without kernel. You next ask "If farmyard manure has any disadvantages?" Intelligently used it has none, but anything that is good in itself if used in excess—the best of food, for instance—becomes more or less injurious. You have probably heard of the reply that was once given by the owner of a very productive garden who was asked

what kind of manure he used; the reply was short but significant, a paraphrase from the remark of a famous painter—"Brains." Think it over.

Pear, Huyshe's Prince Consort (F. M. M.)—The Pear to which you refer, and which you cannot find, is thus described in the "Fruit Manual" under the name of Huyshe's Prince Consort. "Fruit, very large; oblong, uneven and bossed in its outline. Skin, grass-green, which it frequently retains, even when ripe, but becoming sometimes yellowish green; it is thickly covered with large russet dots, which round the stalk are so dense as to form a russet patch. Eye, rather small and open, set in a pretty deep and uneven basin. Stalk, an inch long, stout and woody, inserted in a line with the axis of the fruit in a small cavity. Flesh, yellowish, with a greenish tinge, melting, but not buttery, being rather crisp, very juicy, sweet and vinous, with a very powerful and peculiar flavour unlike any other Pear. A delicious Pear, of first-rate quality; ripe in the end of November. Raised by the Rev. John Huyshe, of Clythdon, Devon, from Beurré d'Arenberg fertilised by Passe Colmar."

Dwarf versus Standard Fruit Trees (A. G.)—The chief merits of dwarf trees are that they are under the eye of the cultivator, entirely within control, produce fruit earlier, and the finest fruit in the least time. Standard trees are less in first cost, require less attention and management, and occupy the ground without profit till the dwarf trees have more than repaid the extra outlay. Dwarf trees become remunerative about the third year, standard trees about the seventh year, but the returns are widely different, as there is the produce of 1210 trees on the dwarfing plan to set against the produce of seventy-five standard trees on the acre of ground. That makes all the difference—the first seven years of remunerative bearing of dwarf trees is sixteen times greater than that of standards, the dwarf trees being 6 feet apart and the standards 24 feet asunder, and in the next seven years, half the dwarf trees being taken out—302 being left at 12 feet apart—there is a clear four times advantage in the dwarf trees, as until the fifteenth year the standards are not on a producing level with the dwarf trees. When the trees are heavily laden the crop should be reduced half or two-thirds to have fine fruits, but the cropping should be apportioned to the vigour of the trees.

Potting Cyclamens (J. McNab)—The "time for potting Cyclamens" depends on the growth of the plants. Young plants raised from seed require larger pots before the roots become firmly matted. Old plants which have flowered in the spring naturally rest for a time, then commence growth some time after midsummer, and just when young leaves are pushing up freely is a good time for removing a good portion of the old soil and repotting. A cool frame facing north is a good position for these plants, with the lights drawn off on dull days and dewy nights, so long as the temperature remains above 50°. In raising plants from seed some of the most successful growers sow in October, and grow the seedlings steadily without check of any kind in a temperature of 55° to 60°, and a genial atmosphere. Dry currents of air are fatal to free growth, and this is also arrested by extreme cold on the one hand and extreme heat on the other. The temperature should not long remain below 45° at any time, nor above 70°. Some growers sow in the spring, as they have not suitable structures for growing the young plants through the winter. If you desire any further information please state its nature explicitly, also indicate the conveniences at your disposal for growing the plants.

Hardwooded Heaths (J. T.)—If the plants require potting it should be done at once, so that they will become partially established in their pots before the sun has too much power. Select some of the best peat, broken up with the hand and used in a moderately rough state; in addition to a liberal dash of coarse sand a little charcoal may be used with the peat. The soil should be pressed firmly into the pots, and the plants stood upon some moisture-holding material in the house in which they are grown. The ventilators may be kept closer for about a fortnight after potting, and the pots and stage being liberally syringed, so that water can be withheld from the roots as long as possible. After potting has been completed push on staking and tying as rapidly as possible. No more stakes than sufficient to maintain the plants steady should be used. If the plants are tied with green thread very few stakes will be needed. The only tying that young stock needs is to bring down the strongest shoots towards the rim of the pots, so that the smaller and weaker ones will have a chance of gaining strength. When growth commences strong shoots that take the lead should occasionally be pinched. Young healthy plants when potted may be placed into pots 2 inches larger than those in which they are growing.

Martynia fragrans (B. R.)—The plant of which you have seed is nearly related to the more popular Gloxinia, and is one of the handsomest of the genus, which consists of seven or eight species. *M. fragrans* is a native of Mexico, and was introduced in 1840, and the genus is named in honour of the late Dr. Martyn, formerly Professor of Botany at Cambridge. It is of robust habit and easy culture, and being an annual there is no anxiety attaching to it in regard to keeping it through the winter, as is the case with the tubers of the Gloxinia, and anyone possessing a hotbed and greenhouse, or either of the two, may cultivate it successfully. The general appearance of the plant is of a strong and bold character, possessing slightly glutinous hirsute stems and foliage. The flowers are axillary and terminal, exhaling a delicate fragrance. It seeds freely, and the pods are curious in shape, and are sometimes pickled, but of this I have no personal experience.

Though the flowers are not so durable as those of the Gloxinia, their abundance amply compensates for their short duration. The seeds may be sown at any time according to the season it is desired to have them in flower, but from February to April is the most general time for the purpose, and the plants will flower from June to October if their requirements are properly attended to. In sowing place the seeds, which are very large, about 3 inches apart, using soil similar in character to that recommended for Thunbergias, and cover with an inch depth of soil. Give a good watering through a rose, and place them in the warmest position at command. As soon as the seedlings have developed their first pair of ordinary leaves let them be carefully transplanted singly into 48-size pots, using a compost of loam and leaf mould in equal parts, and a little manure and sand added. Place them again in a growing temperature as near to the glass as possible in order to encourage a sturdy growth. Give them good supplies of water, and in about three weeks they will be ready for transferring into 32 or 24-size pots, but in most cases the former will be large enough. At this potting use loam, leaf mould, and manure in equal proportions, and add sand according to circumstances. Make the soil around the old ball moderately firm, and replace them in their growing quarters until the blossoms appear, when they should be moved into a cool and shady position. Unless it is particularly desired to retain the seed pods they should be picked off, because they rapidly develop and will exhaust the plant proportionately.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (O. G. O.)—1, Possibly Golden Winter Pearmain, but the eye is defective. 2, Boston Russet, both shrivelled and appear to have been gathered too soon. (W. C. B.)—1, Huyshe's Victoria. 2, Lane's Prolific. 3, Mère de Ménage. 4, Cockle's Pippin. 5, Beurre Rance.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (T. K.)—*Leucadendron argenteum*, the Silver Tree. (J. H.)—*Acacia dealbata*. (*Fragile*).—It is useless marking a parcel "fragile," unless care is taken in making it secure. This you do not appear to have done, as the box reached us in a smashed condition, with the labels torn from the specimens, rendering it impossible to distinguish them so that you would recognise them. The *Dendrobium*, however, is *D. fimbriatum oculatum*.

COVENT GARDEN MARKET.—FEBRUARY 24TH.

SUPPLY of Grapes falling off, with prices improving. Trade steady, with hothouse goods in better demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1	0 to 4	0	Grapes, per lb.	1 6 to 3 0
Apples, Canada and Nova Scotia, per barrel ..	12	0	25 0	Lemons, case	15 0 2 0
Cobs, Kent, per 100 lbs. ..	0	0	40 0	Oranges, per 100 ..	4 0 9 0
				St. Michael Pines, each ..	3 0 6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	0	9 to 1	6	Mustard and Cress, punnet	0 2 to 0 0
Beet, Red, dozen	1	0	0 0	Onions, bunch	0 3 0 5
Carrots, bunch	0	4	0 0	Parsley, dozen bunches ..	2 0 3 0
Cauliflowers, dozen	2	0	3 0	Parsnips, dozen	1 0 0 0
Celery, bundle	1	0	1 3	Potatoes, per cwt.	2 0 3 0
Coleworts, dozen bunches	2	0	4 0	Salsify, bundle	1 0 1 6
Cucumbers, dozen	6	0	10 0	Scorzonera, bundle	1 6 0 0
Endive, dozen	1	3	1 6	Seakale, per basket	1 6 1 9
Herbs, bunch	0	3	0 0	Shallots, per lb.	0 3 0 0
Leeks, bunch	0	2	0 0	Spinach, bushel	2 0 0 0
Lettuce, score	0	9	1 0	Tomatoes, per lb.	0 4 0 6
Mushrooms, punnet	1	6	2 0	Turnips, bunch	0 0 0 4

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (golden) dozen	6	0 to 12	0	Ferns, in variety, dozen ..	4 0 to 18 0
Azalea, per plant	2	6	3 6	Ficus elastica, each	1 6 7 0
Cineraria, per dozen	8	0	12 0	Foliage plants, var., each..	2 0 10 0
Cyclamen, per dozen	9	0	18 0	Gerani, per dozen	10 0 12 0
Daffodils, per dozen	9	0	15 0	Hyacinths, per dozen	6 0 9 0
Dracæna terminalis, dozen	24	0	42 0	Lily of the Valley, per pot	1 3 2 0
" viridis, dozen	12	0	24 0	Marguerite Daisy, dozen ..	6 0 13 0
Epiphyllum, per pot	1	6	2 6	Myrtles, dozen	6 0 9 0
Erica gracilis, per dozen ..	9	0	12 0	Palms, in var., each	1 0 21 0
" hyemalis, dozen	12	0	18 0	Pelargoniums, scarlet, doz.	4 0 6 0
Euonymus, var., dozen	6	0	18 0	Solanum, per dozen	9 0 12 0
Evergreens, in var., dozen	6	0	24 0	Tulips, dozen pots	6 0 8 0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	3	0 to 6	0	Maidenhair Fern, dozen	
Azalea, dozen sprays	0	6	0 9	bunches	6 0 to 12 0
Bouvardias, bunch	0	6	1 0	Mignonette, 12 bunches ..	1 6 3 0
Carnations, 12 blooms ..	2	0	3 0	Mimosa or Acacia (French)	
Christmas Roses, dozen				per bunch	1 6 2 0
blossoms	1	0	1 6	Narciss (French) dozen	
Chrysanthemums, dozen				bunches	2 0 4 0
bunches	3	0	6 0	Pelargoniums, 12 bunches	9 0 15 0
Cineraria, dozen bunches..	9	0	12 0	" scarlet, 12 bunches	6 0 9 0
Cyclamen, dozen blossoms ..	0	3	0 6	Poinsettia, dozen blossoms..	3 0 6 0
Daffodils (double), dozen				Primula (double) 12 sprays	0 6 0 9
bunches	4	0	6 0	Roses (indoor), dozen ..	1 6 3 0
Daffodils (single), dozen				" Red, per doz. blossoms..	4 0 9 0
bunches	6	0	10 0	" Tea, white, dozen ..	1 0 3 0
Eucharis, dozen	4	0	6 0	" Yellow, dozen	2 6 6 0
Euphorbia jacinthæiflora				Snowdrops, dozen bunches	1 6 3 0
dozen sprays	3	0	4 0	Tuberose, 12 blossoms..	1 0 2 0
Epiphyllum, dozen blossoms	0	6	0 9	Tulips, dozen blossoms..	1 0 2 0
Freesia, dozen bunches ..	4	0	6 0	White Lilac (French) per	
Gardenias, per dozen ..	4	0	8 0	bunch	5 6 6 6
Hyacinths, dozen spikes ..	4	0	6 0	Violet Parme, French bchs.	2 0 3 0
Hyacinths (French) dozen				" Czar	1 0 2 0
bunches	1	6	3 0	" small bunches	2 0 2 6
Lilium longiflorum 12				" English, dozen	
blossoms	6	0	9 0	bunches	1 0 1 6
Lilium (var.) dozen blossoms	2	0	4 0	Wallflowers (foreign), dozen	
Lily of the Valley 12 sprays	0	6	1 0	bunches	2 0 3 0
Marguerites, 12 bunches ..	3	0	4 0		



FOOT-AND-MOUTH DISEASE.

THE efforts made by the Board of Agriculture to stamp out contagious disease among cattle appear likely to prove futile so long as the importation of live cattle continues. Three animals, part of a cargo brought recently from Denmark for sale at the Islington Cattle Market, were found to be affected with foot-and-mouth disease. Prompt measures were at once taken to prevent the spread of this most infectious disease, but twenty-four out of the cargo of sixty-eight Danish cattle had already been sold and taken from the market. They were traced to their respective destinations and slaughtered at once; the remaining forty-four also being slaughtered. This has led to the prohibition of any removal of cattle from Chatham, Rochester, Colchester, Aldershot, and Shorncliffe, to which places the twenty-four cattle were traced. Thus all has been done that was possible, but the risk of a serious disaster has been so great that most stringent measures have been taken about the subsequent importation of live cattle.

The effects of this disease are most serious and should be well understood. In no case is it fatal under careful treatment, but the damage done is practically of a permanent character, for it is very seldom that an affected animal is restored to full health and vigour. In dairy cows the milk dries up, and they are never again really good milkers, and it has been distinctly laid down by the best authorities that foot-and-mouth disease in a milking herd practically destroys the milk-giving powers of every cow it attacks. In store or fattening beasts the diseased animals lose flesh very fast, hardly ever fattening well afterwards. In breeding herds it induces sterility, abortion, and barrenness.

For the guidance of our readers we append some extracts from an account of the history and nature of this terrible disease by Professor J. Wortley Axe. Foot-and-mouth disease is a specific contagious affection, due, as is the case with other infectious disorders, to a living organism or microbe; the virus contained in the breath, the saliva, and the milk, and may be in other secretions and excretions of the body. It is so contagious that the germs may be carried from place to place by the wind, by means of litter, manure, water, anything or anyone. Human beings, dogs, rabbits, and rats have been known to carry it for long distances.

The period of incubation—i.e., the time which elapses between the reception of the poison by the healthy animal and the appear-

ance of the disease, varies from two to five days. The first decided indication of ill-health is afforded by the thermometer, which shows the body temperature to have risen 2° or 3° . At the same time the coat stares, the animal appears dull, and trembles as if suffering from cold. Presently marked restlessness is observed, the feet being frequently moved from the ground, and shaken as if to dislodge some offending matter. There is some lameness, with small blisters in the heels at the point where the hair and hoof unite, or in the front at the top of the cleft. Later on separation of the upper margin of the hoofs takes place, and the sensitive structures of the feet are exposed. At the same time a discharge of saliva is seen to issue from the mouth, and a smacking noise is heard from the lips.

Blisters now appear on the inner side of the lips, on the tongue, and on the dental pad. These ultimately break, leaving behind angry-looking sores.

Sometimes there is an eruption on the teats. The bowels are usually constipated, and food is either altogether refused or taken sparingly. The disease has also attacked sheep in the feet, pigs, fowls, and even human beings. In sheep it causes eruption in the feet, in pigs eruption on the feet, snout, and skin.

The affected animals should at once be separated from the healthy, and placed under the care of a special attendant, who should be forbidden to go near healthy stock. His boots should be washed and disinfected regularly on leaving the yard or shed. All contaminated manure should be burned or placed in heaps away from the reach of farm stock. Disinfectants should be freely used in the sheds where the sick are housed, and dogs and cats should be strictly excluded from them.

In the great majority of cases a simple course of medical treatment will suffice, and the patients should be placed on clean, dry litter, so that dirt be as far as possible excluded from the ulcerated feet. The sores here and also in the mouth may be dressed with a solution of carbolic acid or alum twice a day, or a solution of carbolic acid may be used for the feet, the alum solution for the mouth. Where the bowels are much confined, a slight aperient, composed of Epsom salts with some carminative, may be given; but purgatives are, as a rule, to be guarded against. In severe cases, where the fever runs high and there is great prostration, stimulants, such as whisky or old ale, must be used.

The strength should be supported by a plentiful supply of prepared food, such as scalded chaff, boiled linseed, crushed oats, and pulped roots. Affected cows having calves should not be allowed to suckle them, and milk from the sick animals should not be used.

WORK ON THE HOME FARM.

Lambing is now becoming general, in some localities it extends through March, the lambing being timed according to the various local prospective supplies of food. Again do we repeat the warning against the use of Turnips for pregnant ewes. Strange, indeed, is how even our most intelligent farmers cling to custom and persist in using food which has so repeatedly proved hurtful to the ewes. A case has occurred this season where Turnips and Barley chaff caused abortion; the Turnips were then withheld, some hay and a little cake being used instead with the chaff, and there was an end of abortion. Our plan with the ewes is a run on grass held in reserve for them, a pint of crushed Oats per head daily, with as much Barley or Oat chaff as they can clear up, and an unlimited supply of Pea straw in the racks. Delicate ewes also have some of Mackinder's lamb food, consisting of a wholesome mixture of crushed corn, pulse and cake, of which they are very fond. A sound, wholesome, mixed dietary they must have if we would have sturdy lambs and healthy ewes. Where grass is scarce Cattle Cabbage may be used before the lambing, afterwards give a moderate quantity of Swedes or Mangolds. In no case suffer pregnant ewes to be folded on Turnips, or there will be serious losses both of ewes and lambs, as we have so often explained.

Upon the sound principle that a farm should mainly be self-supporting corn threshing should proceed gradually during autumn, winter and spring, in order that there may always be ample supplies of corn and forage for home requirements. Very much of the Wheat must be left late in the ricks for the corn to harden after such a wet harvest. Wheat threshed during the late frosty weather handled fairly dry and hard, but it lost condition when the thaw set in, and there was a proportionate fall in price. It is upon Oats, Barley, Peas and Beans that we depend for our cattle food; the gradual threshing prevents waste,

keeping the chaff fresh and sweet. Discretion in this matter is equally important with the careful selection, breeding, and feeding of live stock. The only way to meet foreign competition is to breed only the best—prime quality, early maturity, marketable size being always kept well in view. A large framed coarse beast, however fat, never commands the competition which a plump medium-sized beast does, and the same rule holds good among sheep. Mark all faulty ewes as lambing goes on; never retain a doubtful animal in the flock but draft them out with over-age sheep after the lambs are weaned, keeping up numbers by a selection of the best ewe lambs every year.

HOGG & WOOD'S FARM SEED REPORT, 1892.

FOLLOWING up our usual custom, we beg to submit our annual spring report on the probable supplies of farm seeds for the coming season, and in doing so it is pleasing to be able to state that notwithstanding the wet and sunless summer, and the gloomy forecasts as to a dearth of seed made during the winter months of the bygone year, there are likely to be sufficient supplies of good quality for all requirements, and taken all round at prices not greatly in excess of those current in 1891. By constant watchfulness and care we have been fortunate in securing supplies of Rye Grass, Clovers, and Natural Grasses of excellent qualities, clean, well-matured, and of strong growth.

English and Welsh Red Clover, and Cow Grass or Perennial Red Clover.—The crop of these, owing to the want of sunshine during harvest, has been disappointing, but there are some good-growing seeds, although not so fine and bright as usual.

Foreign Red Clover.—The yield on the Continent of Europe, in Canada and the United States of America, is reported as fair, and some fine qualities are to hand at rates somewhat in advance of those of the past year.

White Clover.—This both in England and abroad has proved a poor crop, and prices are ruling high.

Alsike Clover.—The reports from England are that the crops are almost a failure, but as America and Canada are reported as having fully an average yield there will be a plentiful supply, it is anticipated, at rates rather under those of 1891.

Trefoil or Yellow Clover.—Although an under-average supply of both English and foreign seed is reported, prices are under those of last year.

Perennial and Italian Rye Grass.—Of Perennial the yield is very short in all the producing districts, and rates are considerably higher than for some years past. Italian of home growth is more plentiful, but foreign seed is scarce and dear.

Timothy, Cocksfoot, and other Natural Grasses are generally in good supply, and at moderate rates. Cocksfoot, Timothy, and Meadow Fescue are sown liberally by our foremost agriculturists for two and more years' pasture along with the usual mixture of Rye Grass and Clovers.

Tares, Large Scotch and Foreign.—Both plentiful and prices low.

Turnips and Mangolds.—These were a very poor yield, and some sorts, notably the yellow-fleshed varieties, are scarce, and prices have advanced.—HOGG & WOOD, Northumberland Agricultural Society's Seedsmen, Coldstream, N.B.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1892. February.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun	*On Grass.	
Sunday ..	14	30.226	34.8	32.4	N.W.	39.6	41.4	30.2	43.2	25.8	0.135
Monday ..	15	29.455	39.3	38.6	N.W.	39.2	41.9	34.4	51.9	35.2	0.425
Tuesday ..	16	29.669	27.2	26.1	N.E.	38.6	35.2	23.9	83.0	31.8	—
Wednesday	17	29.519	22.9	21.9	N.W.	37.3	33.8	17.5	68.4	12.2	0.092
Thursday ..	18	29.170	28.2	27.0	N.W.	36.8	36.9	22.2	81.2	19.9	—
Friday ..	19	29.366	28.9	26.6	N.E.	36.2	34.2	19.8	42.0	14.1	0.069
Saturday ..	20	29.349	31.2	30.8	N.E.	36.0	42.4	27.8	49.2	25.5	0.196
		30.542	30.4	29.1		37.7	38.0	25.1	58.8	23.5	0.917

* On 16th, 18th, and 20th the radiation thermometer on grass was covered by the snow.

REMARKS.

14th.—Cloudy early; ice needles and fine snow from 9.30 A.M. to about 1 P.M., and occasional drizzle after.

15th.—Wet or drizzle from 2 A.M. to 9 A.M.; dull dark morning; frequent sleety rain from noon to 1 P.M., and then continuous snow and ice needles till 1 A.M. on 16th.

16th.—Brilliant throughout, except from noon to 1 P.M., when a few flakes of snow fell. Average depth of snow at 9 A.M., $\frac{1}{2}$ inches.

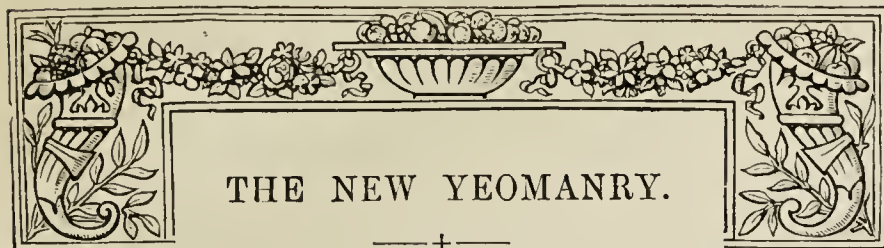
17th.—Brilliant morning; a little cloud in afternoon; nearly 3 inches of snow in evening.

18th.—Almost unbroken sunshine throughout.

19th.—Overcast morning; fair afternoon, with sunshine just before sunset; a little sleet in the evening, and about half an inch of snow at night.

20th.—Overcast throughout; slight sleet early, and smoke fog from 10 A.M. to 11 A.M.; rain at night.

An extremely wintry week, but with brilliant sunshine on the 16th and 18th. Temperature 12° below that of the preceding week, and about 7° below the average.—G. J. SYMONS.



THE NEW YEOMANRY.

IT is a trite saying that people cannot be made sober by Act of Parliament; but, all the same, the Legislature can make it more or less difficult for the thriftless to indulge in pernicious habits; and it follows, conversely, that it can aid the acquirement of what it may be deemed good or politic for the people to possess. It appears to be thought by our legislators that the time has arrived when special facilities should be afforded for the rural population to obtain land—not as tenants chiefly, but as owners; and State aid is to be granted, under stipulated conditions, to enable those of the working population who can raise a little money to obtain possession of land for an initial outlay representing one-fourth its value; hence quite disproportionate to the capital invested—or, in other words, for a preliminary payment of £25, land to the value of £100 is to be granted to applicants. It is a bold, not to say a daring, experiment in, as the *St. James's Gazette* puts it, creating yeomanry by Act of Parliament.

The Small Agricultural Holdings Bill appears destined to effect a revolution in rural life and habits. It is scarcely necessary to say that the term is not used in any anarchical sense, but in its social and orderly acceptation by a change of a somewhat fundamental character which may, and we hope will, be of benefit to many, without, as we also hope, doing injustice to any person who may be brought within the sphere of its influence. It is the opinion of not a few persons, who regard the matter from totally opposite standpoints, and who look to the possibility with widely differing feelings, that the tendency of the measure, which will be subjected, as it should be, to searching examination and discussion, points to the nationalisation of the land. The suggestion gives us no concern, for even if that should be the ultimate issue, the process will be so slow as to be imperceptible, and in fact may not be effected at all. As a rule the advocates of land nationalisation either possess little or no land of their own, or are encumbered with what is of no value to them, and they would have no objection to sell it to the nation at a price they may regard as advantageous. But the new Bill is specially intended to considerably increase the number of landowners, who are cultivators, and who may, therefore, consider it their interest to make strenuous endeavour to retain the land which comes into their possession. If the majority find it advantageous the coming change may be anticipated with satisfaction; but if the reverse should happen to occur, the dissatisfaction with the then existing order of things will be as great as, and perhaps greater than, that which appears to exist now, and which has called the Bill into being. In the latter eventuality, which is not the remotest of probabilities, there will be lively times in the election of the public bodies who will be responsible for the working of the Act.

Though there are many thrifty and industrious men who are capable of improving their position by the management of small plots of land, there are many more who do not possess the necessary qualifications for working it successfully, and it is to be feared that the rosy anticipations of not a few will fail to be realised. Every man who can improve the land and his own position by his labour and intelligence should, in our view, be afforded the opportunity; but we also hold that no man, whether he be a large or a small holder, should be accorded the privilege of spoiling land. Regarding the question from that point of view,

a system of tenancy on an equitable basis would seem to be preferable to the principle of ownership. Let an examination be made of a number of field allotments side by side, and an extraordinary difference will be apparent between them—a difference wholly due to methods in cultivation. Some of the plots can be of no practical value to the occupiers, and it is only a question of time for the land to “run out”—i.e., rendered useless through exhaustion.

On the other hand there are plots that show splendid results in cultivation, and the crops must be of distinct advantage to the tillers; in other words, we see land improvers and land spoilers side by side. The improvers we would encourage by increasing the extent of their holdings, and decrease in the same proportion those which represent nothing but negligence or mismanagement. “A very good idea,” was the remark of a gentleman to whom the plan was proposed, “but in these days we landowners dare not carry it out, or we should be proclaimed as tyrants.” Can this be the reason that under the new Bill land may be let under certain conditions? But its primary object is to create owners whose little properties will be mortgaged to the State, with County Councils or other elected bodies acting as agents or middlemen. If the plan of encouraging the thrifty and industrious on sound and just lines cannot be carried out by private owners of land through fear of the consequences, neither can it be by elected bodies removable triennially by the votes of the majority of electors; and therefore, as in the past so in the future, it is feared that a good deal of land will not long remain of service to the possessors, and will depreciate in value through their apathy or inaptitude as cultivators.

Allotments have been provided in past times on estates in various parts of the country, and for a time some zeal was manifested in their cultivation, but eventually one after another of the plots was allowed to become exhausted until the system as originally established broke down. It has been the same in many districts with so-called small owners, yeomanry, or cottagers, call them what we may. After a struggle with pecuniary difficulties, consequent on deaths occurring if nothing else, the titular possessors became so hopelessly involved that the dilapidated buildings and worked-out land could no longer be retained. It may be, and we trust it is so, that the present generation of workers will prove more competent in the management of land than their predecessors were—more devoted to home duties, more intelligent and perseveringly industrious. It is certain they have greater facilities for acquiring information that may be of service to them than were ever provided before, and it is earnestly to be hoped that they will turn the advantages to profitable account by thoughtful action and determined work. In no other way can they improve their positions, and make the means that are instituted for their welfare answer the object in view.

But though there have been failures in the past that led to the practical collapse of small holdings in many localities, there have also been successes, and one of these, which was possibly not without its influence in bringing about a change of views by Mr. Chaplin, is in a part of Lincolnshire called the Isle of Axholme. Taking Epworth as the centre, we find, from a statement supplied to us by a parish official, Mr. J. Standring, that the extent of land in that parish is in round figures 5742 acres. Over this area there are only two occupiers who have more than 200 acres of land each, twelve are holders of between 100 and 200 acres each, fourteen have between 50 and 100 acres, thirty-one each farm between 20 and 50 acres, forty between 10 and 20 acres, 115 between 2 and 10 acres, while eighty have plots ranging from half an acre to 2 acres. The land is good in staple, and, as we have seen, is splendidly cultivated. It is dark in colour, and affords bountiful crops. As seen in the autumn after harvest the appearance is somewhat remarkable. There are no fences between the long narrow strips, the plough furrows having been the accepted boundaries for generations.

There was once a popular style of flower gardening, known as the "ribbon system," because composed of lines of flowers each of one kind and colour. Around Epworth we may see the ribbon system of farming, as long strips of distinct colours, stretching from the valleys up the gentle hillsides almost as far as the eye can see; the light streaks are stubble, the dark ones between them vacant land, from which, perhaps, early Potatoes have been dug; then we have the bright green of Mangold Wurzel, the bluish green of Swedes, the brownish hue of late Potatoes, with the black-and-white streaks between—the general effect being wholly different from that which is commonly seen in agricultural districts. And what of the people? Possibly a more generally well-to-do, satisfied, more comfortably housed, and orderly community would be hard to find. We find a sturdy hospitable race of workers, not made by Act of Parliament, but born to the custom that has prevailed for generations, if not for centuries.

In respect to the produce from these small holdings as compared with the food raised on an equal extent of land in large farms, Mr. Standring has no hesitation in saying that there is a larger amount of grain, at least an equal amount of beef, a much larger quantity of pork or bacon, also vegetables, but a smaller quantity of mutton, as small holdings are not adapted to sheep walks. When he was asked to give evidence before a Committee of the House of Commons on the question of allotments, he called a meeting of men who had been in possession of from 1 to 2 acres of land each for a few years, and after hearing what the men had to say he suggested they should sign a paper, which they readily did. It was to the effect that before having the allotments they had a dread of a long frost in each winter throwing them out of work, and causing much privation and possibly temporary pauperism; but since they had the land they had grown half an acre each of Wheat, Barley, and roots, which had produced them bread, bacon, and Potatoes for the winter, and in some cases for the greater part of the year, at little cost. They could work that quantity of land in slack times for wage labour, and were altogether better by its acquisition, while farmers had not to pay any advance in the wage rate. With such useful plots of land men do not wander far from their homes, and there are always sufficient to engage in work and for others at moderate wages; it is when men are really scarce that wages rise, and then the needed work does not get done, and land owners and farmers suffer in consequence.

The real cause of much land depreciation in the past can be traced to the lack of capital to supply the requisite labour in working and clearing, as well as in affording adequate fertility for the production of full crops. Both large farms and small allotments have been ruined by exhaustion, and in increasing the number of small holdings a chief danger will be in men investing every penny in purchasing the land. Those will act the most wisely who limit their obligations in that respect by taking care to have a reasonable amount of capital for working, or they will run the risk of being in bondage all their lives. The Bill provides for the renting as well as the purchase of land, and a sound and safe system of tenancy may in many cases be the wiser course. A widespread desire exists to help those workers in rural districts to improve their condition in life, and an important question to be determined is the mode in which the laudable object in view can be attained. Perhaps some of our readers may have ideas on the subject. The Bill referred to is of such great moment that we append the following digest as it appeared in the *Times* of last Saturday.

THE SMALL AGRICULTURAL HOLDINGS BILL.

MR. CHAPLIN'S Bill sets out with directing that, if any County Council are of opinion that there is such a demand for small holdings for the labouring population of their county as justifies them in putting the Bill into operation, the Council may acquire any suitable land for the purpose of providing small holdings. Those for whom provision may thus be made must be persons who are resident in the county and desire

to buy and will themselves cultivate the holdings. With regard to the size of a holding, it must be between 1 acre and 50 acres, or, if it is larger, its annual value for income-tax purposes must not exceed £50. The land must appear to the Council to be suitable for agriculture. For the purpose of purchase, the Land Clauses Acts are incorporated with the Bill, except the provisions with respect to the purchase and taking of land otherwise than by agreement. As was specially objected by the Opposition, the principle of compulsion is not adopted.

When a County Council have bought land, they may before selling it again adapt it for small holdings by dividing and fencing it, making occupation roads, and executing any other works, such as works for the provision of drainage or water supply, which can in their opinion be more economically and efficiently executed for the land as a whole. The Council may also, if they think fit, as part of the agreement for the sale and letting of a small holding, adapt the land for a small holding by erecting on it such buildings, or by making such adaptations of existing buildings, as in their opinion are required for the due occupation of the holding, and cannot be made by the purchaser or tenant.

With regard to sale, the County Council are directed in the third clause to apportion the total cost of the acquisition of the land and of any adaptation of it among the several holdings in such manner as seems just. This cost is to include every expense incurred by the Council in relation to the land, inclusive of any allowance to any officers of the Council for work done in relation thereto. The Council are then to offer the small holdings for sale in accordance with "rules" to be made under the Bill. Where, however, the Council are of opinion that any persons desirous of buying and themselves cultivating are unable to buy on the terms fixed by the Bill, but will be able if they are permitted to occupy in the first instance as tenants, the Council may, instead of offering the holding for sale, offer to let it in accordance with rules under the Bill. In the case of letting, however, the size of the holding is restricted to 10 acres.

The fourth section provides that any County Council may, and every County Council not being a Council of a county borough is bound to appoint a committee to consider whether the circumstances of the county justify them in putting the Bill into operation. Power is given to any one or more county electors to present a petition to their Council, alleging that there is a demand for small holdings in the county, and praying that the Bill be put into operation. Thereupon the petition is to be referred to a Committee, and on being satisfied that it is presented in good faith and on reasonable grounds they must forthwith cause an inquiry into the circumstances to be made, and the result is to be reported to the Council.

With regard to the purchase money of a holding, it is to include all costs of conveyance, but not any expense incurred by the purchaser for legal or other advice or assistance. The time within which the purchase is to be completed is to be fixed by the rules, but it is to be not less than a month after the purchase. On such completion not less than one-fourth of the purchase money must be paid by the buyer. A portion representing not more than a fourth may, if the Council think fit, be secured by a perpetual rent charge, which is to be redeemable by the landowner at an amount to be fixed by the Land Commissioners. The residue of the purchase money is to be secured by a charge on the holding in favour of the Council, and is to be repaid by half-yearly instalments, with such interest and within such term not exceeding fifty years as may be agreed on with the Council. Should the purchaser so require, it is to be repaid by a terminable annuity payable by equal half-yearly instalments. The amount for the time being unpaid may be discharged at any time in accordance with tables to be fixed by the Council. If the Council think fit, they may agree to postpone for five years or less the time for payment of all or any part of an instalment, either of principal or interest or of a terminable annuity, in consideration of expenditure by the purchaser which, in the opinion of the Council, increases the value of the holding. But this must be done on such terms as will prevent the Council from incurring any loss. The title of the purchaser is to be guaranteed by the Council, and the remedy of any person claiming by title paramount is to be in damages only. However, a holding may be sold subject to such rights of way or other rights for the benefit of other small holdings as the Council consider necessary or expedient.

The County Council are to make "rules" for carrying the Bill into effect. In particular, there are to be rules (1) as to the manner in which holdings are to be sold or let or offered for sale or letting; (2) As to the notice to be given of the offer for sale or letting; and (3) For guarding against any small holdings being let or sold to a person who is unable to cultivate it properly, and otherwise for securing the proper cultivation of a holding.

The following conditions are imposed by Clause 7 with respect to every small holding thus sold by a County Council for ten years from the date of sale, and thereafter, so long as any part of the purchase money remains unpaid:—(1) Any periodical payments due in respect of the purchase money must be duly paid; (2) the holding must be cultivated by the owner, and must not be used for any purpose other than agriculture; (3) it must not be subdivided or let without the consent of the County Council; (4) not more than one dwelling house may be erected on a holding, and no dwelling house may be erected where the annual value for the purposes of income tax does not exceed £25, unless the holding appears to the Council sufficient to enable the occupier to maintain in comfort himself and his family by the cultivation thereof; (5) any dwelling house erected on the holding must comply with such requirements as the Council may impose for securing healthiness and

freedom from overcrowding. Should any of these conditions be broken the Council may, after giving the owner an opportunity of remedying the breach, if it is capable of remedy, cause the holding to be sold. Any such sale may be made either subject to the charge in respect of purchase money or free from it. In either case the sale will be like the first sale of a small holding. After satisfying themselves, the Council are to pay the remainder of the proceeds of sale to the person appearing to be entitled to receive it. Under special circumstances, to be recorded in their minutes, the Council may sell under this clause, free from all or any of the conditions imposed by it. Where a holding is let by the Council it is to be held subject to the same conditions of this clause as if it were sold, except so far as concerns the purchase money. If any such condition or any term of the lease is broken the Council may, after giving the tenant an opportunity of remedying the breach, determine the tenancy.

Where it is practicable the Council must sell or let as small holdings, and in accordance with the Bill, any land acquired under the Bill. But if they are of opinion that any such land is not needed for or is unsuitable for small holdings, or cannot be sold or let under the foregoing provisions, or that some more suitable land is available, they may sell or let the land otherwise than under those provisions, or may exchange it for other land more suitable for small holdings, and may pay or receive money for equality of exchange, and may erect such buildings and execute such other works as will in the opinion of the Council enable the land to be sold or let without loss. Any such letting is to be at the best annual rent that can be obtained without any premium or fine, and on such terms as may enable the Council to resume possession of the land within a period not exceeding twelve months. Also while any sale is pending they may temporarily let or manage the holding. Upon any sale under this Clause 8, the sections 128-132 of the Lands Clauses Act, which relate to the right of pre-emption of superfluous lands, are to apply. Thus the land is to be first offered to the owner of the lands from which it was originally severed, and secondly to the owners of the lands immediately adjoining. In case of any difference the price to be paid by either of them would be settled by arbitration.

Where a Council provide small holdings of such a size that dwelling-houses cannot, by virtue of the conditions of the Bill, be erected thereon, they may delegate, with or without restrictions, their powers with respect to the adaptation of land for the holdings, and the sale, letting, and management of them, to a Committee. This Committee will consist of the County Councillor representing the electoral division in which the holdings are situate, two other members of the Council, and two of the Allotment Managers under the Act of 1887 for the parish or area in which the holdings are situate, selected by those managers, or, if there are no Allotment Managers, two persons appointed in manner provided by that Act for the appointment of Allotment Managers. The Council are, however, not to delegate any powers of making or levying a rate or of borrowing money.

The second part of the Bill deals with loans to tenants. Where a tenant of a "small holding" has agreed with his landlord for its purchase, the County Council may advance to the tenant on the security of the holding an amount not exceeding three-fourths of the purchase money. The provisions of the Bill with respect to the purchase money secured by a charge on a holding sold by a County Council, and with respect to a holding so sold, are to apply to an advance made and to a holding purchased under this clause. The exception, of course, is that the Council will not guarantee the title. However, no advance is to be made by the Council under this clause unless they are satisfied that the title is good, that the sale is made in good faith, and that the price is reasonable.

In Part III, it is laid down that a Council are not to acquire land under the Bill, save at such price that in their opinion all expenses incurred by the Council in relation to it will be recouped out of the purchase money or rent for the land sold or let by the Council. They are to fix the purchase money or rent at such reasonable amount as will, in their opinion, guard them against loss. The Council are required not to take proceedings under the Bill whereby the charge for the time being on the county rate, including the annual payments in respect of the loans raised for the purposes of the Bill, is in their opinion likely to exceed in any one year the amount produced by a rate of a penny in the pound. Where the charge is at any time equal, or nearly equal, to that amount, no further land is to be purchased in pursuance of the Bill until the charge has been decreased so as to admit of the further purchase without exceeding the amount.

For the purposes of the Bill the Council borrow money in accordance with the Local Government Act of 1888, or, if the Council of a county borough, with the Public Health Act of 1875. But money so borrowed must be repaid within such period, not exceeding fifty years, as the Council, with the consent of the Local Government Board, determine in each case. The Public Works Loan Commissioners may, in manner provided by the Public Works Loans Act of 1875, lend any money which may be borrowed by a County Council for the purposes of the Bill. Every such loan by the Loan Commissioners will bear such rate of interest, not less than £3 2s. 6d. per cent. per annum, as the Treasury may authorise as being in their opinion sufficient to enable loans to be made without loss to the Exchequer. Any capital money received by a Council in payment of purchase money for land sold, or in repayment of an advance, is to be applied, with the sanction of the Local Government Board, either in repayment of debt or for any other purpose for which capital money may be applied. The expenses incurred by the Council

of a county borough are to be defrayed out of the borough fund or borough rate, and any money borrowed by such a Council is to be borrowed on the security of that fund or rate.

For the purposes of the Bill the expressions "agriculture" and "cultivation" include horticulture and the use of land for any purpose of husbandry, inclusive of the keeping or breeding of live stock, poultry, or bees, and the growth of fruit, vegetables, and the like.

The Bill extends to Scotland, with regard to which country there are some modifications in Clauses 14 and 15. To Ireland the Bill does not apply in any way.

THE FLORIST'S RANUNCULUS.

[Read before the Wakefield Paxton Society, February 12th, 1892, by REV. F. D. HORNER.]

(Continued from page 143.)

FROM its nature as a moisture-loving plant, the *Ranunculus* delights in a soil that is firm and retentive of moisture without being soured by it. I do not think colour is of so much importance as texture and coolness. Soil that will grow good Buttercups will suit *Ranunculuses*; but the most wondrous success I ever knew was that of a Halifax grower, many years ago now. At the lower part of his garden was a plot of black greasy bog earth. Not a sour marsh, but a fat black paste never dry, nor yet water-logged. He used to win as many prizes almost as he liked to try for, and the vigour of the plants was wonderful. The stems were 2 and 2½ feet high, giving very fair side blooms, and unapproachable crown flowers of splendid depth, substance, form and colour.

Those who have known the *Ranunculus* can appreciate a result like this. The foliage was in splendid condition, and the increase good. Mr. Lightbody accomplished something similar once, but never again, by treating his *Ranunculus* bed in part with the high stimulant of guano. He said the plants were marvellous, and the flowers also; but when they died down, there was not a tuber among them. They had perished like so many annuals. The *Ranunculus* loves a cool firm bottom to the bed, and it is a mistake to dig over ground that suits them—I was going to say, again—but at any rate not later than after they are recently taken up, that it may have plenty of time to settle. I only ruffle mine over to a depth of 3 inches at planting time, and a sufficient enrichment, if such be required, is a thin dressing of cow manure laid on as soon as the bed is at liberty in summer. It is no worse for being still rather fresh, for between July and February the summer rains will wash it in, and the winter weather mellow it. It is better than horse manure, as giving a more cool and retentive nature to the soil.

When the young foliage appears, it is apt to loosen the soil round the tuber neck, and therefore any such exposure should be remedied by carefully pressing the soil round the leaf growths. Snails are very fond of eating off the young leaves as they appear, and this quickly weakens or destroys the plant. The best preventives are sprinkling the bed pretty freely with soot just before the leaves appear, and in addition hunting for slugs by lantern light on favourable nights. Large earthworms create disturbances, and may be captured at the same time if they face the soot.

Speaking of *Ranunculus* foliage leads me to mention, as I promised, one of the most delicate points in *Ranunculus* culture—namely, the management of this moisture-loving plant in a spell of dry hot weather in May or June.

Here we must not argue from the *Chrysanthemum*—another moisture-loving plant—to the *Ranunculus*. *Chrysanthemums* must have water in dry weather, and *Ranunculuses* must not; *Chrysanthemum* foliage will suffer if you do not water in dry weather, and *Ranunculus* foliage will suffer if you do! You can only safely water *Ranunculuses* when it rains! But suppose no showery spell breaks in upon a drought, How then? Well! if you feel that you cannot resist the temptation to water the *Ranunculus* bed, beseech a neighbour to borrow your water cans, or hide them for you till it rains! To meet this summertime contingency of drought, which is pretty sure to happen in some degree or other, the *Ranunculuses* should have been forearmed against it. You may run the shading material for blooming under, over the bed, and it will save the plants some distress in bright sunshine. But there should be means provided beforehand for withstanding drought by a preventive to excessive evaporation. The bed should be covered about quarter inch deep after planting with either fine sand or sifted leaf mould with flakiness still in it. Rub it through a quarter-inch sieve. Either will look desperately dry in dry weather, but you will find that, at less than 1 inch below, the soil is moist enough, and will remain so through any probable drought. I like the sifted leaf mould better than sand, because sand has to be taken off again, lest in time it make the soil too light; while leaf mould works in, and retains moisture better. More than that, leaf mould is a worse conductor of heat than dry hot sand, and keeps the bed cooler.

Now I will mention why watering in dry weather is worse than

useless with the *Ranunculus*; and, I suspect, with some other plants too, and not to be compared with methods to prevent excessive evaporation. The tendency, and often the effect, of watering is to make *Ranunculus* foliage the worse for it, even to turning it yellow. Left alone, even in bright sunshine, the leaves are bright and glistening. They seem as if set in a state of resistance to drying influences, very likely still refreshed by the dews of the previous night. The dew does not waste itself on substances that have no need of it. It will bedew the tiniest blade of grass, but leave the dusty road untouched. Moisture may rise to the surface by capillary attraction from below, but does not settle on it from the dew above. That is only formed or condensed on surfaces soon cooled like the tips and surfaces of leaves. While the ground is yet warmer than the night air, no dew can distil upon it.

By watering the *Ranunculus* bed in hot dry weather, and doing it by day, you surround the leaves of the plants with a state of atmosphere suddenly contrary to that which each leaf has prepared itself to meet. Its organs are ready for one emergency, and in a moment you plunge them into another of quite the contrary kind. Whatever be the true philosophy of this, the practical outcome is that you have given to the *Ranunculus* leaf a surfeit or a chill. It may be that the sudden moisture absorbed by the roots is passed into the leaf tissues before its pores are in a state to deal with it.

We learn that in general, "these pores are largest and most numerous on plants that delight in moist and shaded situations, and on such plants are found to exist on both sides of the leaf; indeed, they exist on the under side of all green leaves, but are few or absent on the upper leaf surface of plants naturally much exposed to the sun."

In dry weather, leaf pores instinctively contract or close their orifices, as a safeguard against excessive evaporation; in fact they are so many self-acting valves, always adjusting themselves to the circumstances of temperature, dryness and moisture of the air, and so regulating the exhalation of leaves. There would seem to be something in the temperament of the *Ranunculus* leaf that renders it impatient of abrupt changes artificially brought about, and contrary to the existing conditions in the atmosphere. It might be that the valve action in its leaf pores becomes over-taxed, in a short and unexpected notice, producing effects like congestion of the lungs or pneumonia, and the leaf turn sickly and yellow.

If you water the plants, not by day but in the evening of dry weather, there is another check to which the *Ranunculus* leaf seems to be susceptible. A thermometer placed on the soil surface of a watered bed at night will show, if all around is dry, how seriously the surface temperature of the soil is lowered by evaporation. Virtually a refrigerating agent is applied round every plant, almost as effective as a piece of ice down the back of every leaf.

Perhaps here is the cause of the perplexity that gardening people, I don't mean gardeners, express when they say that their plants, generally more or less half-hardy bedders, look not a bit better for being watered, but if anything, worse. "And we do it at night, too," say they, "we do not do it when the sun is on them." There is a peculiar charm in this, and the delightful sensation of "knowing a thing or two." And when the charm does not act, and a great tip has gone wrong, as most empirical tips are wont to do, then our gardening person is "capped."

The comical aspect of the matter is that with such folk a failure is often done over again, as if in the hope that what was wrong this time may be right next, though circumstances are similar!

The only wise time for watering the *Ranunculus*, possessing this touchiness in its nature, is when a rainy day or night occurs. It will not come so suddenly but that, unperceived by us, all vegetation is prepared for, and in harmony with the welcome change. All conditions of the atmosphere are softened. There are no harsh opposites of a wetted soil and a dry air, no extreme of consequent evaporation that withdraws warmth along with it. When it rains, and does not rain enough, then you may take off the muzzling order from the nozzle of your watering-can, and water your *Ranunculuses*, or any of your plants that need it, without fear; and if you can give them the rain water as it comes fresh so much the better.

We will very briefly turn to the plants in bloom; and the flowers of the *Ranunculus* will themselves suggest that they should be shaded from the sun, and also protected from the rain, for the petals will hold as much water as will bend the flowers to the ground, and often break their stalks. The shading material should therefore turn both sun and rain. As to properties of the florist *Ranunculus*, the colours cannot very well be wrong. They have a wondrous range. There are selfs in all shades of white, blush, pink, red, crimson, scarlet; primrose, lemon, orange; lilac, light purples and dark, with some shades of crimson and purple, so deep as to appear blacks—a most lovely class in the *Ranunculus*. Then

we have edged and mottled and striped flowers on white or yellow grounds—all of them lovely types. There are also strange mixtures, best described as roans, of olive brown and other shades.

Form is very important. Of course the best flowers are double, though in their old age they will at times develop a few stamens and small pericarp. Petals must not be narrow or strappy, but broad, smooth edged, of good substance, gently cupped, tending to form a deep globular flower, with petals set with a gentle curvature inwards, and not reflexed like a double *Zinnia*.

Where seed is wanted it can, of course, be only obtained where a few anthers have not been metamorphosed into petals, and where a seed vessel, often abortive and generally small, in our best *Ranunculus* can be discovered. A few good broad and not flimsy petalled half-double sorts are useful as pollen parents; and these half-doubles have also good seed vessels, though nothing so tremendous as the single forms possess.

But for quality in the seedlings I would rather have the shy pod of a first-rate double flower, and a few seeds only, by a half-double male parent, than a whole packet from single parents or two half-doubles. The seed is a mere bran, with a flattish pin head of a germ set in the middle, something like a head in a Panama hat, and grows freely. It is most easily managed if sown in February, when the old roots are planted, and needs no artificial heat. A young tuber of two or three claws, or even one large one, will flower from its second year's growth if properly cared for, and others, probably the best, a year later.

A bed of seedlings is a lovely sight, both from their vigour in young life, and the brilliant tints of the large single forms, that put the *Anemone* very often in the shade, to say nothing of the infinite variety of other forms, with here and there a gem after the florist's own heart.

My last words shall be in memoriam of a beloved and once well known, but I fear now extinct, *Ranunculus*—*Naxara*, Black *Naxara*; truest model for the *Ranunculus*, fullest, deepest, roundest of them all—a peerless flower, never equalled in its contour and the carriage of its flowers, that kept a brave heart to the end, and went down like some noble ship stricken with her sails all set, and going down all standing. That was *Naxara*—dark, handsome *Naxara*—the truest black, the truest florist *Ranunculus* ever seen or known.

Those of us who have known her will never forget *Naxara*. I fear we shall never look upon her like again, or, if we do, never upon *Naxara* herself. I have sought after her, and bought the boasted blacks in foreign lists. There is not one that is a patch upon the cheeks of *Naxara*. I hoped she might have got among them by some chance, and changed her maiden name, but she had not.

The only garden robbery I ever suffered was committed many years ago on the *Ranunculus* bed, and *Naxara* blooms were stolen, and her tubers either pulled up or so checked that I never flowered her again, and I do not think I have ever seen her since.

I fear I have not fulfilled my opening prophecy of shortness, but the tone of sadness you will admit is here.

ORCHARD PLANTING.

I HAVE during several past years planted new orchards on grass land with standards of Apples and stewing Pears as outside rows, the other rows consisting of Apples and a Pear or Plum at intervals for variety. When doing this I showed the natives how trees should be planted. The turf was first pared off in a circle 8 feet across, the hole dug to a depth of 2 feet, the good soil being placed on one side, and the bad wheeled away. I then placed in as drainage 9 inches of old tiles, &c., covering these with the turf grass downwards. We next prepared a compost of soil, old mortar, and bones, and placed some of this over the turf. A stake was driven in not quite in the middle of the hole, the tree was planted, all bruised roots being previously cut away. Wire 4 feet high was secured round the stake and tree to prevent rabbits destroying the bark, finishing off by tying with haybands. If cattle molest the bands a little tree protective composition applied will prevent a repetition, and always apply a mulching of manure as a finish. The land had been previously drained at 20 feet apart with 3-inch pipes. I have not lost one tree out of the hundreds planted. Most of the trees have made growths 2 feet and more in length, and are now bristling with fruit buds. I always allow a few fruits on each tree to test the sort, and to keep rank growth in check. I advocate planting about 6 inches below the level of the grass, and applying soil in future as required to keep the roots near the surface.

It may be asked what varieties I recommend; different districts require different sorts, only to be ascertained by experience. Those found to do best here are, for cooking, *Alexander*, *Alfriston*,

Baldwin, Baumann's Red Reinette, Bedfordshire Foundling, Bismarck, Blenheim Pippin, Bramley's Seedling, Callini, Cox's Pomona, Domino, Ecklinville, Gascoigne's Seedling, Golden Noble, Grenadier, Hanwell Souring, Kentish Fillbasket, Lady Henniker, Mère de Ménage, Lord Grosvenor, Beauty of Kent, Seaton House (Norfolk Beefing is the best I have found for colour and keeping), Peasgood's Nonesuch, Potts' Seedling, Red Beitigheimer, Rymer, Schoolmaster, Small's Admirable, Loddington, Stirling Castle, The Queen, Tom Putt, Sandringham, Warner's King, New and Old Hawthornden, Tyler's Kernel, and Dumelow's Seedling. Of dessert varieties we have Adams' Pearmain, American Mother, Balchin's Pearmain, Duchess of Oldenburg, Braddick's Nonpareil, Court Pendu Plat, Court of Wick, Cox's Orange Pippin, Pine Golden Russet, Jefferson's, Kedleston Pippin, King of the Pippins, Lady Sudeley, Beauty of Bath, Mannington's Pearmain, Mr. Gladstone, Peck's Pleasant, Red Astrachan, Irish Peach, Rosemary Russet, Worcester Pearmain, Grange's Pearmain, Russet Nonpareil, and Sturmer Pippin. These are a selection of sure bearers in this district (Monmouthshire) out of 150 sorts at present tried. I have many others as bush and standard trees, including all new sorts, on trial, but anyone desiring to plant cannot fail to make a good selection from the above either for bushes or standards. - JOHN CHINNERY.

PLANT CULTIVATION IN TUBS.

SOME cultivators object to growing plants in tubs because, being less porous, air cannot penetrate them as readily as through the sides of pots, thus the soil is likely to become sour and the roots unhealthy. Physiologically this sounds feasible, but in practice I find plants thrive equally as well in tubs as in pots, and I would suggest that those who have not succeeded might have traced their failure either to careless watering or overtubbing.

To keep roots healthy and active air should pass freely through the soil; but it must be patent to all who will give the matter a thought that roots in a properly drained medium must enjoy far more of this life-giving element than when planted out, yet it is a fact that most plants thrive better planted out than in pots.

In the decoration of large stageless conservatories it is generally found that if several plants of one kind are arranged together in groups they are far more effective than if the same number of plants were scattered over a large area; hence it follows that if from six to twelve plants, according to their size and nature, are planted together in a tub there will be considerable saving of labour both in watering and arranging the plants.

For cut flower purposes this mode of culture has much to commend it, especially, as is often the case, when grown in fruit houses, as there is all the advantages of the planting-out system, with the additional one of being able to carry the plants from one house to another.

By way of illustration, what could be more charming than a tub containing about twelve strong plants of Arum Lilies? Grown in this way the flowers are much larger and the growth more vigorous than in pots. A tub containing enough Poinsettia plants to produce about two dozen large floral heads will create an effect not easily forgotten when seen in the depth of winter and associated with Arums. Eucharis amazonica grows well and flowers freely in tubs, especially if placed over hot-water pipes so as to get a little bottom heat. Clivias should be seen in tubs to realise their true value. They are ornamental whether in flower or out, and there are few plants that will flower so freely with so little attention, or that are so indifferent as to position.

There are a host of plants, both flowering and foliage, that do not attain to very large dimensions individually which could be grown to a higher state of excellence several together in tubs, and in roomy places they would be far more useful than if grown singly in pots.

Let it, however, be remembered that most of the plants must be properly prepared in pots before planting them in tubs, for to place small plants in a great mass of soil in a tub would in most cases end in failure. As a rule they should be established in at least 5-inch and 6-inch pots before they are fit for tubs.

Old Zonal Pelargoniums that have done service through the winter and early spring make fine objects, if sufficient plants are carefully arranged in tubs to fill them without overcrowding. They are especially useful either for standing outside through the summer or for conservatory decoration.

The cheapest way of procuring tubs is to buy petroleum barrels and saw them through the middle. When cut in this way there will be no hoop within from 5 inches to 7 inches of the top of the tub, and unless braced round in some way the staves at the top will separate and allow the water to pass through; thus the plants may be starved from the want of it. To prevent this we tie No. 6 black fencing wire into a hoop just big enough to knock up

tightly to within 1 or 2 inches of the top of the tub. Two strong handles should be screwed to each tub, and whatever form is chosen they should be bent at right angles with the sides of the tubs, so that they may be easily carried either with the hands or with sticks.

In order to prevent any mischief arising from the petroleum, the tubs should be burnt out and the inside slightly charred, but care must be taken not to burn them too much. A coat of green paint on the outside and the hoops and handles brushed over with Brunswick black will give them a far better appearance than red pots. Of course holes must be provided for drainage.

The only disadvantage with these tubs is, that they are about 4 inches too shallow for receiving plants that are turned out of large pots and at the same time affording adequate drainage and keeping the plants low enough to provide for watering. For the mode of culture, however, this paper is intended to suggest, viz., of growing several plants in one tub, in order to produce a maximum effect with a minimum of labour, petroleum barrels, prepared as directed, are unique.—J. H. W., *Leicester*.

NARCISSUS JOHNSTONI.

OPINIONS seem to differ as to whether *Narcissus Johnstoni* (fig. 23) is really a species or a natural hybrid, and in one trade list the confusion has been still further increased by terming the type a species, and some

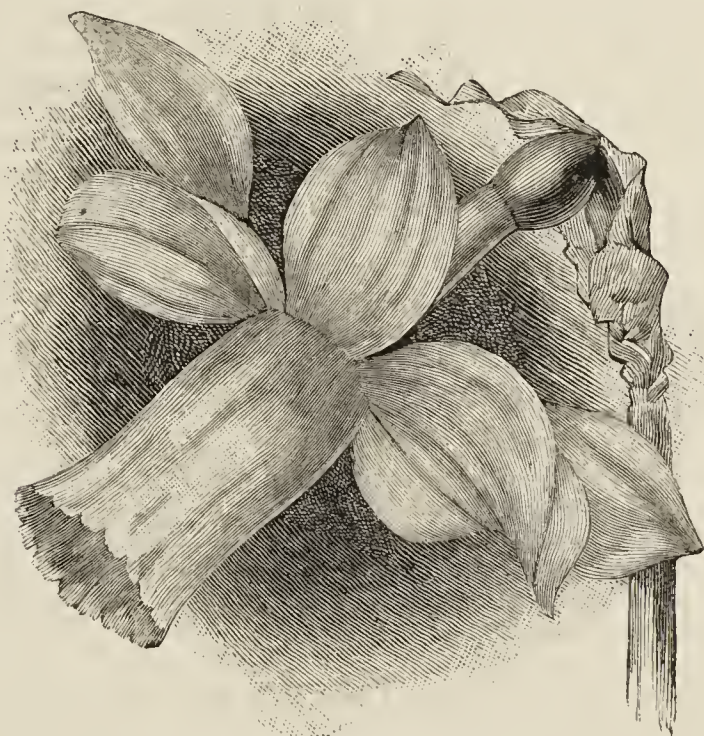


FIG. 23.—NARCISSUS JOHNSTONI.

of its very near relatives as hybrids between the Ajax group and *N. triandrus*. However, it is obviously correctly placed with the Ajax, or Giant Trumpet Daffodils. The flowers are of moderate size, but very neat and compact, the perianth and the short straight corona being of a clear sulphur yellow tint, very bright and pleasing. A variety named Mrs. George Cammell, or "The Great Spanish Beauty," is also of a clear soft yellow, somewhat paler and more delicate, but even more charming in general appearance than the type. It was collected by Mr. Peter Barr in Spain during the spring of 1888, together with the "Queen of Spain" and "Pelago," both having very softly tinted flowers.

N. Johnstoni and its varieties succeed in rather dry gritty soil near the base of a wall or the trunk of a tree, where shelter from excessive rain is afforded. The plants are, however, quite hardy, at least in the neighbourhood of the metropolis.

PRIMULAS AT PERRY HILL.

MESSRS. JAMES CARTER & Co. have, as is well known by visitors to their nurseries, long been engaged in raising new forms of these deservedly popular and increasingly admired winter and spring flowers. Their clients know how great has been the advance both in the size, colour, substance, and form of the flowers during recent years, and it follows that as every year brings improvements, this season's display of the plants grown for seed is finer than ever; but as "brushing" (pollen distribution) is going on daily for setting the seed, there is consequently daily diminution in the floral effect. This, when the plants were in full beauty a week ago, was sufficiently imposing, as will be conceded

when it is understood they number 7000, associated in blocks of colour in the different structures. They are not large "specimen" plants obtained by sowing early in the spring, but stocky, sturdy, thrifty plants, the result of sowing about midsummer, and they have plenty of vigour in them for supporting the seed. That is the object in view—good seed of the best varieties that can be attained by careful fertilisation and selection, with the rejection of all below the ideal standard of excellence, which is high.

It may be taken for granted that the guide or showman, call him what we may, at Perry Hill will not omit to draw attention to the batch of Holborn Blue, which was certificated for its newness in colour a few years ago, and has since been greatly improved in size and form; nor will a still newer distinct and pleasing form, Holborn Porcelain, pass unnoticed, for it forces itself on the visitor's attention by the boldness of its flowers and their charming colour—a sort of shading or blending of blue tints, with a suspicion of a shimmering of silver, caused, in part at least, by the play of light on the lustrous surface of the blooms. This is undoubtedly a fine Primula, numbers of flowers exceeding 2 inches in diameter, and at the same time substantial and symmetrical. Holborn Porcelain is destined to become a favourite, but it cannot find its way everywhere very quickly, as it is a somewhat shy seeder, and therefore, like some other things new, will remain for a time the favourite of the few, though it must eventually find its way into the greenhouses of the many.

Among other glowing varieties Holborn Ruby attracts by its massiveness and richness. It is a variety of sterling merit; and so, indeed, are the other "Holborns"—Rose, Vermilion, Carmine, Magenta, and Salmon, the predominating colours being indicated, and it must be said they are generally brighter and better, because more sparkling and lively, than represented in colours in the *Vade Mecum* of the firm. Without an exception, too, the plants are of good habit, with robust spikes of handsome flowers.

In contrast with the "blocks" of bright colours are large sheets of fleecy white, represented mainly by two varieties, both pure, yet totally distinct, inasmuch as Holborn Elaine, clear pearly white, has dark purplish leafstalks, while Holborn Queen has tender green leaves and stems. Both are bold, free, and effective. Some persons prefer Elaine, others the Queen, while others again, and probably the majority, cannot make up their minds which they like best, so adopt the sensible plan of growing both. Then, for those who desire something midway between what may be termed the reds and the whites, Holborn Venus is provided, white dotted and pencilled with colour, no two flowers being alike, yet all possessing the family likeness. The varieties alluded to are all single, all distinct, firmly fixed in character, and uniformly good.

Equally dissimilar from each other are half a dozen double or semi-double varieties that seed with more or less freedom, and are reproduced with fidelity. They have a somewhat more massive appearance than the singles, produce their flowers well above the foliage, generally expand earlier, are more durable, and, consequently, remain attractive over a very long period. They should be grown by all and everywhere as convenience is afforded for the plants. At Forest Hill the following are the leading varieties:—Prince of Wales, bright rosy crimson, free, floriferous, and altogether good; Princess of Wales, a natural companion, and, as befits its name, very charming in its rosy, flesh-tinted hue; Lilac Queen, a stately form, deepening to purple, and effective; Blue Rosette, a delicate lilac blue, free and attractive; Carmine Empress, one of the richest of all Primulas, compelling all visitors to pause and admire its beautiful flowers, and, as a white, we have Snowflake, as pure as its name denotes, and a general favourite.

Those in the main are the varieties grown at Perry Hill. There are others in limited numbers—the latest selections—undergoing the ordeal of comparison and fixation. Only a comparatively few out of the many that are raised possess all the coveted properties that stamp them as improvements. Their newness or dissimilarity from established sorts of the first merit is not enough to warrant their increase, and though many are novel, curious, and even in some respects attractive, yet if they do not exhibit a combination of virtues, so to say, they have to go. These probationers are kept far distant from the general stock with the object of averting seminal disturbance by pollenisation, and it is because of the care exercised in this respect by experienced Primula growers that the purity of their selected varieties is so well maintained.

The flower-loving public are greatly indebted to commercial florists for the improvement of the various kinds of plants they severally take in hand. This supply of superior forms increases the demand, with the inevitable result that the cultivation of them increases year by year. The advance that has been effected in Primulas is indisputable, and in this Messrs. Carter have shared to the satisfaction of themselves and their friends in the floral world.—INSPECTOR.



EVENTS OF THE WEEK.—On Friday, March 4th, Messrs. Protheroe and Morris will offer several interesting Orchids for sale by order of Mr. F. Sander, such as *Cypripedium Chamberlainianum*, *C. Kimballianum*, and *Cattleya Victoria Regina*, commencing at 12.30 P.M. On the 7th there will be a sale of Hardy Perennials, Dahlias, &c., and on the 9th of Azaleas, Roses, and other plants, at their rooms, commencing at 11.30 A.M. There will be a meeting of the Royal Horticultural Society at the Drill Hall, James Street, Westminster, on March 8th, when a lecture will be given on "Plants for House Decoration."

— **THE WEATHER.**—The indications of a change from the somewhat mild weather with occasional light showers experienced in the south of England that were noted on the 27th ult., were quickly borne out. The weather remained dull and lowering on the 28th and 29th, while March opened with a piercing wind, which increased in force towards evening, when snow, sleet, and rain fell. On the 2nd inst. the cold wave was maintained, snow falling intermittently. Slight frosts have been registered on several occasions. Though the change of weather will have retarded outdoor operations somewhat, it is of advantage in keeping back the fruit buds.

— **THE GARDENERS' ORPHAN FUND.**—The Committee met on the 26th ult. for the first time since the annual meeting, and unanimously re-elected Mr. W. Marshall to the office of Chairman. The following gentlemen were elected local secretaries for the ensuing year—viz., R. Bell, Esq., Tyrone, for Ulster; Mr. George Cooper, Kirkstall, for Leeds and district; Mr. F. Collyer, for Ilkley, Yorks; Mr. Malcolm Dunn and Mr. Matthew Todd, for Edinburgh; Mr. Fairgrieve, for Dunkeld; Mr. Goldsmith, High Treas, for Redhill, Surrey; Mr. Hussey, Clive House, for Esher, Surrey; Mr. J. B. Stevenson, for Bournemouth; Mr. J. Lyne, for Chislehurst, Kent; and Mr. Upjohn, Worsley Hall, for Manchester. The following gentlemen, who retire, were accorded a hearty vote of thanks for their past services:—Mr. Furze, Mr. Ellicott, Mr. Frankland, Mr. Lumsden, Mr. F. Ross, and Mr. L. Castle. The following special receipts were announced as having been received during the month:—Manchester Gardeners' Improvement Society, £5; Reading Gardeners' Improvement Society, £2 2s.; Mr. J. Thomson, Hawkhurst, £1 1s.; and Mr. M. Dunn, £1 1s. The sum of £1000 was authorised to be invested; and guardians were appointed for the eleven children who were elected at the annual meeting.

— **KINGSTON GARDENERS AND THE ORPHAN FUND.**—A meeting has, we learn, been called for Saturday evening next, March 5th, at the Albany Hall, Kingston-on-Thames, for the purpose of determining upon some action or effort in aid of the Orphan Fund. There are very many gardeners about the town and neighbourhood, but so far only about four are subscribers. There is no local secretary, and literally next to nothing done for so good an object. We hope the meeting will result in the production of something tangible in aid of the Fund. We are requested to mention that every gardener in the district is cordially invited to attend.

— **TESTUDINARIA ELEPHANTIPES.**—A correspondent wishes to know if any reader of this Journal can inform him "To what age Testudinaria elephantipes attains, how long it takes to form one notch or square, and how often it flowers."

— **WEATHER REPORTS.**—Why are your correspondents so bashful? On pages 144 and 145 the whole value of several statements is destroyed by the localities not being given. "A. V. M." writes from "Staffordshire," "B. D." from "South Perthshire," which is not much better; but "W. T." bears off the palm, for he does not say whether his observations were made in England, Scotland, or Ireland.—G. J. SYMONS.

— **THE SALE OF WEED-KILLERS BY THE TRADE.**—A case of great importance to the horticultural trade has just been decided. It was one brought by the Pharmaceutical Society of England against Mr. E. J. Butt, a Barnstaple seedsman, for selling a weed-killer admitted to contain arsenic in large proportions, and thereby, it was alleged, contravening the Act restricting the sale of poisons to registered

pharmaceutical chemists. It is enacted by the 15th section that "any person who shall, *inter alia*, sell or keep an open shop for the retailing, dispensing, or compounding of poisons, not being a duly registered pharmaceutical chemist, or chemist or druggist, shall for every such offence be liable to pay a penalty or sum of £5." After citing the plaintiff's case, and also the arguments for the defence, Judge Paterson gave judgment for the Pharmaceutical Society for £5 and costs on the higher scale, but giving Mr. Butt leave to appeal as the matter was one of general importance. It behoves the trade to note the result of this case and of the appeal, for the decision given means that every nurseryman, seedsman, or florist selling a poisonous compound for weed-killing purposes will bring himself within the pale of the law, and render himself liable to a penalty.

— **CHELSEA PRIMULAS.**—Messrs. James Veitch & Sons send us an assortment of Primula blooms, and it is the record of a simple fact to state that we have not seen any to surpass these, while one, the Chelsea Crimson, in its single and semi-double form exceeds in richness any they have yet brought under our notice. The names and the flowers became mixed in the box during transit, but they include Chelsea Red, very dark; Chelsea White, very pure; Double and Single Rose, extremely delicate and charming; Chelsea Blue, and flowers that appear the result of a cross between the blue and a white, so delicately are they tinted. Taking all the varieties together they are certainly a beautiful assortment of blooms.

— **FRUITERERS' COMPANY BANQUET.**—The Master (Mr. G. J. Brocklesby) presided at the annual banquet in connection with the Fruiterers' Company, at the Whitehall Rooms, Hotel Métropole, on Thursday night, being supported by the Lord Mayor, Mr. Alderman and Sheriff Tyler, Mr. Sheriff Foster, Alderman Sir R. Hanson, Bart., M.P., and Alderman Sir H. E. Knight. The Fruiterers, we need scarcely say, received the loyal and patriotic toasts with an appreciable amount of patriotism. The Lord Mayor said the Corporation was closely attached to the livery companies of the City, and he thought that the Fruiterers' Company had shown its *raison d'être*, especially in the character of the late Master, Alderman Sir James Whitehead, who had done so much in the interests of English fruit culture. His Lordship then gave the health of "The Master, and long life and prosperity to the Fruiterers' Company, may it continue and flourish, root and branch for ever." The Master, having acknowledged the toast, Alderman Sir Henry Knight, in asking the Company to drink to the toast of "The Wardens," read a telegram he had received from Sir James Whitehead at Eastbourne, regretting his inability to attend that night. Mr. H. R. Williams, in acknowledging the compliment, alluded to the forthcoming Fruit Exhibition which is to be held on the Thames Embankment during the present season, and in which Sir James Whitehead has taken so much interest. He thought the advantage of this situation could not be overestimated, because otherwise it would have been impossible to hold a fruit show within the City. The cost of establishing such a show as this would be not less than £2000. Such an exhibition could not fail to do much good, because there was plenty of room for improvement in fruit culture in this country, and the competition with foreign countries would become severer as time went on.—(*City Press*.)

— WE have received a copy of the third edition of Mr. E. S. Dodwell's compact, yet comprehensive manual, entitled "THE CARNATION: ITS HISTORY, PROPERTIES, AND MANAGEMENT." The demand for the work affords the best evidence of its acceptability and its usefulness. The author appears to have compressed into a little under 120 pages all he has learned during his long experience as a raiser and cultivator, and he gives descriptive lists of varieties. This edition contains a supplementary chapter on the yellow ground Carnation, which all growers of the flowers will desire to see. Mr. Dodwell will not admit that the ideal of beauty in florists' flowers can be determined by rule and plummet, for this is what he says—"Classification has its useful place amongst flowers beyond all doubt; but far more important to the florist is the cultivation of the artistic element. The more fully they realise the 'joy for ever' involved in the 'thing of beauty,' the more they go to Nature and note her glories and simplicities, the more will they turn from dogma and the ignorant formulas in which, as a rule, it revels. Form, with its infinite expression; colour, with its glorious harmonies; contrast, in its masculine force; and combination, in its enchanting results—will be ever an informing study, always enlarging, never restricting; and minds so formed will not peddle as to a shade of colour, the breadth or direction of a stripe, or as to varying

form. What is to be in the future I know not, but if the Carnation amongst its great variety should take upon itself the winged form of some Lilies even, marvellous as the departure might seem, I have faith to believe the florist I have painted would rejoice in God, and gratefully accept His glorious gift." The work is published by Mr. B. Wynne, *Gardening World* office, 1, Clement's Inn, Strand, W.C.

— **PREPARING SOILS FOR POTTING.**—Gardeners have various methods of preparing and mixing soil for potting purposes, but there is the right way and the wrong one. Some gardeners insist on the soil being mixed and used at once. This I consider an erroneous method, especially when soot or chemical manures are used. My objection is that the sudden action of ammonia coming in contact with the young roots of the plants is certain to injure them to some extent. My method of making a compost is to place each proportion of the different ingredients separately on the potting bench, and then thoroughly mix them. The mass is then covered with bags or mats to prevent evaporation, and the soil remains at least three days, or a week if possible, before using. By this time the ammonia and other gases have time to work through the soil evenly, and the compost can be used with more safety.—G. W. W. M.

— **THE SHROPSHIRE HORTICULTURAL SOCIETY.**—The eighteenth annual Exhibition at Shrewsbury is fixed for August 17th and 18th next, and the schedule just issued is on an extensive scale, with most liberal prizes. There are thirty-one classes for plants, with £260 in prizes, including £20, £16, £14, and £12 for groups; £20, £15, and £10 for sixteen stove, greenhouse, and ornamental plants; and £12, £8, and £5 for group of Orchids. The sum of £100 is devoted to fruits, with £10, £6, and £3 for large collections, and good prizes for smaller collections; and £10, £6, and £3 for six bunches of black Grapes. £110 is set aside in prizes for cut flowers, with large prizes for a collection of Dahlias, collection of Gladioli, collection of hardy herbaceous flowers and bouquets. A quantity of prizes are offered for vegetables, exclusive of generous extra prizes by leading seed firms; and the cottagers have a very large number of classes devoted to them. It is an extraordinary schedule, of which the Shrewsbury Executive may be proud.

— **A NEW TYPE OF VIOLA.**—Last summer blooms and cuttings were sent to me by one of your correspondents, Mr. George Steel of Heatherslaw, Cornhill-on-Tweed, of a charming new Viola raised by Dr. Stuart of Chirside, and named Violetta, and my notes taken at the time describe it as "white, with a small yellow blotch in the centre; a small bloom of pretty form, and of dwarf close habit." I was much struck with it, as possessing the true character of the bedding Viola which I am anxious to see preserved. It was also free from any dark markings in the centre of the flower, and there was a distinctness in the bloom, and of very pleasing form and substance. It is very fragrant. With it Mr. Steel also sent me blooms of seedlings from Violetta, which preserved the character of the parent plant, but varied in colours, and of these I hope we shall hear more this spring, as Mr. Steel intends sending me blooms. Amongst them was one named Maggie Steel, a primrose shaded white, with yellow centre; also Flossie Brutton, a pure white; Mrs. George Finlay, pale yellow, shaded with white, and distinct; and Miss Allandale, soft shaded lilac, with yellow eye and of pretty form.—W. DEAN.

— **DESTROYING SLUGS.**—I believe with "W. S." (page 130) that slugs will endure any amount of frost, but I fancy handpicking is rather a tedious process. As I think the plan followed here is more effectual I give it for the benefit of others who may not have tried it. Take a pailful of bran and make a dozen or twenty little heaps with as many handfuls about a yard apart in all the favourite haunts of the depredators. Early the next morning—i.e., before the sun reaches them, take a pail of hot lime and dust them over, for they will be found clustered on the bran, perhaps twenty or thirty in one heap, and if the lime is fresh it will kill them. Mild mornings in April are best for a wholesale riddance of the enemies. Box edgings are said to harbour slugs, so do Cabbages. One thing is certain, if we keep the slugs they can always find their own lodgings, Box or no Box, and they can be trapped without going off the walk, which is rather an advantage than otherwise. "W. S." says when the soil is heavy slugs are more abundant than on lighter soils, and this may be true as a rule, but there are exceptions. We have a light soil, and the slugs would clear the place of vegetation if allowed to have their own way, while in a garden not a mile distant on a much stiffer soil I have often heard the gardener say that he rarely sees a slug.—H. W.

— STOCKPORT CHRYSANTHEMUM AND FRUIT SHOW.—The statement of accounts in reference to the last Show at Stockport we are pleased to note as satisfactory, and the dates of this year's Exhibition are November 18th and 19th.

— THE Horticultural Department of the Chicago Exposition is planning to have a Rose Garden in which will be 50,000 plants, besides large groups in special areas. The garden will be of classic design with temples, arbours, archways and trellises.

— AMERICAN WAGGONS, as manufactured by the Cortland Waggon Co., are to be introduced to the British public through an agency just established at 31, 32, and 33, Henrietta Street, Covent Garden, of which Mr. Thomas Clarke, known in connection with the Excelsior mowers, will take charge.

— DOES FROST DESTROY SLUGS?—I am certain that frost does not injure many (if any) of our garden pests, certainly neither slugs nor snails. The latter will remain all the winter through the keenest frost beneath a board half an inch thick uninjured; so you see I differ from "I," page 107.—W. T.

— THE Bury St. Edmunds and West Suffolk Horticultural Society appears to be in a flourishing condition, a balance of £43 12s. 11d. being declared at the annual general meeting. This year's Show is fixed for June 30th. Mr. W. Armstrong was re-elected Hon. Secretary, and it would have been difficult to find a better one.

— THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY have arranged for three Shows this year. A spring Exhibition is to be held on March 29th and 30th, a summer Show on June 29th and 30th, and an Exhibition of Chrysanthemums and fruit on October 25th and 26th. Mr. E. Carpenter is the energetic Secretary.

— ETCHED LABELS.—Of the many varieties of labels for flowers, &c., I have not observed any etched ones. If these were adopted of brass, copper, or other metal I think they would offer advantages others do not possess, such as being permanent, quickly made, written upon indelibly, and easily fastened by lead wire to stakes or trees or to insert in the ground.—W. T.

— BLACK BRIONY.—Can anyone tell me where or how I could get a plant of "Black Briony," either by purchase or otherwise? A friend from the extreme north of the kingdom writes me, asking if it grows in the hedges here, and, if so, if I will send a plant; but I do not know it, and am ignorant as to where I could even purchase a plant. Can your readers help me through our Journal?—S. S.

— PRESTON AND FULWOOD FLORAL AND HORTICULTURAL SOCIETY.—The forty-fifth monthly meeting of the members and subscribers of the above Society will be held on Saturday evening next, March 5th, 1892, when Mr. W. Troughton, of the Nurseries, Walton-le-Dale, will read his paper, "Notes on the Culture of Hardy Fruits Suitable for North Lancashire." Chair to be taken at 7.30 by His Worship the Mayor, Councillor Humber.

— THE eighteenth annual Exhibition of the ROYAL HORTICULTURAL SOCIETY AT LIEGE will be held at the Casino Grétry, Boulevard d'Avroy, on the 24th, 25th, and 26th of April. The Secretary is Mons. Jules Closon, and the President Mons. O. Lamarche-de-Rossius, Avenue d'Avroy, 123, Liège, Belgium. The schedule to hand gives particulars of 120 classes, embracing Orchids, Roses, and a number of the leading greenhouse and stove plants.

— THE NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT ASSOCIATION.—A grand concert and ball was held at the Grand Assembly Hall, Barras Bridge, Newcastle, on Thursday last, the object being to obtain funds to build a horticultural institute. The President (Mr. Norman Cookson, Wylam) was present, and supported by Alderman Bell, ex-Mayor of Newcastle. The President, in a few well-chosen words, congratulated the Society on its success, and said he would like to see more employers join the Society, so that mutual interests and views might be exchanged.

— THE RAINFALL IN SUSSEX.—The total rainfall at Cuckfield, Sussex, for the past month was 1.37 inch, being 1.02 below the average. The heaviest fall was 0.29 inch (snow) on the 17th. Rain fell on fourteen days. Maximum temperature, 51° on the 7th; minimum temperature, 16° on the 17th. Mean maximum, 43°; mean minimum, 32°; mean temperature, 37½°. Partial shade readings, 2° below the average. On the 17th, 18th, and 19th the temperature was 16°, 18°, and 17° respectively. The mean temperature for the three last weeks was—second week, 42°; third week, 30°; fourth week, 39.8°. Vegetation forward for the season.—R. I.

— AMALGAMATION OF SOCIETIES.—At the last annual dinner of the Gillingham Cottage Gardeners' Society, Mr. C. R. Cheffins, from his place in the chair, strongly urged the amalgamation of the Gillingham and New Brompton Gardeners' Societies into one large association. Subsequently a meeting of the Gillingham Society was held, Mr. Herbert Gibbs in the chair, and a resolution in favour of amalgamation was carried almost unanimously. A committee was appointed to confer with the New Brompton Society.

— A NEW USE FOR CHRYSANTHEMUMS.—A Japanese correspondent of the *Moniteur d'Horticulture* calls attention to the fact that the Chrysanthemum is utilised for a purpose not commonly known to the inhabitants of the West in Japan. The flowers, he states, are used somewhat like salad in Europe, being soaked in vinegar and other liquids, and eaten. They are not a fancy, but a popular dish, and plenty of flowers can be seen in the greengrocers' shops. Most of the varieties are said to be edible, but preference is given to those with small dark yellow flowers.

— I HAVE noticed in the Journal lately one or two communications about SLUGS. Perhaps the following may be of use to some of your numerous readers:—Early in April obtain some young ducks about a fortnight old, and give them the run of the garden for a month, when they must be removed, another brood of small ones taking their place for a similar period. Up to six weeks old they do very little damage, whilst they are the best "slug hunters" with which I am acquainted. Of course, they must have their liberty early in the morning, also till late in the evening. It is best to confine the mother under a coop. If the above plan is followed every spring there will be little trouble with slugs.—CHAS. PORTSMOUTH, *Haswell*.

— INJURIOUS INSECTS.—We have received the fifteenth Report of Miss Ormerod's "Observations of Injurious Insects," and it affords abundant evidence of the author's untiring diligence and care in obtaining and distributing the latest information on the enemies which gardeners and farmers have to combat. The diamond-back moth that proved so destructive to Turnips in many districts last year is exhaustively treated, and all who wish to know what is to be known about the invader should read the report. Orchard caterpillars receive a goodly share of attention, and much valuable information is given respecting them. Several pages are devoted to the Raspberry maggot and Currant bud mite, as well as to other garden foes, and various useful hints are embodied respecting them. Miss Ormerod evidently takes great delight in her work, treats the different subjects in a thorough manner, and is doing a service to the horticultural community. The Report is published by Messrs. Simpkin, Marshall & Co., and contains many illustrations.

— A PRELIMINARY schedule of the THIRTEENTH QUINQUENNIAL EXHIBITION AT GHENT is to hand. It is proposed to open the Show in the last fortnight of April, 1893, and it will be divided into twenty-seven sections—new plants, Orchids, hothouse plants, Aroids, Palms, Cycads and Pandanus, Ferns, greenhouse plants (flowering or otherwise), special examples of stove plants, greenhouse flowering plants, hardy forced trees and shrubs, hardy plants, softwooded and herbaceous greenhouse plants, bulbs and tubers (greenhouse), bulbs and tubers (hardy), Azaleas, Camellias, hardy Azaleas, hardy Rhododendrons, greenhouse Rhododendrons, ornamental plants for unheated houses, ornamental hardy plants; Agaves, Yuccas, Alocs, and succulents; Conifers, results of experiments for instructive purposes, bouquets and floral decorations, garden and greenhouse plants, systems of heating, tools, &c. Count O. de Kerchove de Denterghem is the President, and Mons. A. L. Rossel the Secretary.

— PLANTING OUT CYCLAMENS.—Plants that were raised from seed sown about the middle of August will now be ready for a shift from the thumb pots to a size larger. Ours will be grown in a temperature of 55° to 60° until about the middle of April, when they may be shifted to a cold frame and kept there until about the middle of May. They will then be planted out in a cold frame on the north side of a wall. The compost best suited to grow them, both when in pots and frames, consists of one-half good fibry loam and one-half leaf soil, passed through a half-inch sieve, with a free admixture of coarse sand to keep the whole open. They are lifted at the beginning of September and placed in pots according to the roots they possess, the same kind of soil being used for potting as mentioned above. The plants must be kept close for a time to prevent flagging. I have found Cyclamens planted out give far more satisfactory results than those grown in pots all the year round, and producing from sixty to 100 fully developed spikes at one time.—W. PENTON.

RUDBECKIA CALIFORNICA.

AMONGST hardy plants possessing conspicuous attractions the Rudbeckias have of late years taken a prominent position, and we have had occasion to call attention to several of these at different times.

represent distinct genera. In the Royal Gardens, Kew, about ten species are grown, and these comprise all the best marked types, for there is a strong family resemblance running through the Rudbeckias as in many other groups of the Compositæ.

R. californica (fig. 24) is in several respects a noteworthy perennial



FIG. 24.—RUDBECKIA CALIFORNICA.

About twenty-five species are known, and with these are included, according to the latest authorities, the species of *Echinacea*, *Lepachys*, and *Obeliscaria*, which some botanists have considered to

plant; it is of free growth and strong habit, succeeding in ordinary garden soil, and is quite hardy. Next to *R. maxima* it has the largest conical disc of the genus, which imparts much character to the flower

heads. It comes near to *R. laciniata*, or what is known in gardens as *R. diversifolia*, but the leaves are ovate or oblong, and not cut or varied in form like that species. The plant attains the height of 3 to 5 feet, though in a wild state it is found to be dwarfer, occasionally not exceeding 2 feet in height. The flower heads are large, the ray florets often $2\frac{1}{2}$ inches long, and bright yellow, the high cone-shaped disk being of a brownish tint.

R. californica is found growing in moist ground on the Sierra Nevada, California, and according to Gray it was there first collected by Bridges.

DEEPENING SOILS.

PLANTS growing in shallow soils often suffer during long periods of drought. They are also sometimes injured and fail to do satisfactorily through their roots penetrating the subsoil, and thus coming in contact with injurious substances. There can be no question that deep fertile soils which are well cultivated are capable of yielding a heavier crop of superior produce than can possibly be obtained from soils not one-third of their depth. It is almost impossible to estimate the large supplies of plant food locked up in the soil in a dormant state that might be rendered available for them if exposed to the atmosphere.

In commencing this important work considerable care and judgment are needed, or instead of good results the opposite may follow. I have no faith in trenching land on wholesale principles, as the means by which a greater root run for plants can be obtained. Certainly less has been heard of trenching during the past few years, and I am not sorry, because the brilliant results that were to be achieved did not follow, but in many cases the land was ruined for several seasons. I do not say that the teaching of those who advocated trenching was wrong, the fault may have been with those who seized upon the idea and spent valuable time and labour in turning up land to render it practically unworkable. If time had been taken to think before acting different methods would have been adopted and superior results obtained. To deepen some soils, and to reap the advantages that accrue by this labour, is not the work of a solitary season, but is accomplished only by a gradual process, extending perhaps over years.

The nature of the soil and subsoil to be operated upon must be duly considered before commencing, because some soils may be deepened by one-half the labour and risk that follow the deepening of others. For our purpose soils may be divided into three classes—heavy, intermediate, and light, or in other words clays, loams, and sands. These might be sub-divided into several sections, for soils vary widely. Light soils are, as a rule, comparatively easy to work and deepen, but they rarely yield the same good return for the labour expended upon them, nevertheless they can be improved and made to yield profitable crops of good produce.

The time of year to commence this deepening process also varies to some extent with the nature of the soil. Some soils by the aid of a few spring frosts, a week's sunshine, and drying winds are in a capital condition for almost any crop. This, however, is not the case with those of a stiff retentive nature. Early autumn and winter are the best times to dig soils that are adhesive. The sooner in autumn they can be turned while they are moderately dry the better, so that they will be fully exposed to the disintegrating influences of the atmosphere throughout the winter. Loams and sandy loams may be improved by deepening at once, or whenever the weather is favourable, especially where it is not necessary to crop them for the next month or two. I do not favour the deepening of stiff soils during the spring months, for they are apt to bake, and no amount of working or artificial methods of breaking them up can reduce the soil to the fine powdery condition that is brought about by the action of frost.

To deepen stiff soils not more than 1 inch should annually be brought to the surface, and this must be turned roughly so as to expose as large a surface to the atmosphere as possible. Not only does the atmosphere act mechanically, but chemically; the carbonic acid and the oxygen of the air, assisted by rain, wear down and break up substances in the soil, rendering insoluble matters soluble, increasing the fertility of the land, and thus rendering available for the next crop plant food that would otherwise have remained in a dormant condition. This is not the only advantage of thorough exposure during winter. It is given opportunities of absorbing ammonia from the air. Not only do I advise bringing to the surface 1 inch of fresh soil, but thoroughly breaking up the subsoil some inches in depth. If the land is well drained this results in an increase in the temperature, a free circulation of water and air; where the water passes air will follow, and thus carry out its fertilising and disintegrating work; the subsoil, therefore, being in a better condition for the roots of the plants to enter, and is in a sweet condition when brought to the surface the following season.

I know a garden which fifteen years ago had only 6 inches of workable soil on the surface and now it is 18 inches in depth, and this has been brought about by digging deeper annually and bringing up a little of the lower soil each time. If this land had been trenched, being stiff clay, it would have been ruined for years. The character of the soil, by careful autumn and winter cultivation, has been greatly changed; being once stiff and difficult to work, is now comparatively easy. Time wonderfully improves the character of these soils, and manure when applied should be used in a lightly fermented condition only. It may be dug in at any time when turning the land, for there is no fear of the loss that would take place on light soils. The decomposition of the manure in the soil is an advantage and assists in keeping the soil open and porous.

With loams and sandy loams if turned up early and are not to be used for the sowing of small seeds, from 2 to 4 inches of the lower soil may be brought to the surface without injury. Before carrying out this work it should be decided what crop is to be grown upon the land, and the depth of material brought up should depend upon the depth of the drills that can be drawn for the various seeds or crops of plants to be grown. The object is to start the roots in the soil we know to be fertile, trusting to rain to carry down any fertilising matter to the roots that has been rendered active by exposure. The surface soil being in excellent condition by the end of the season by constant stirring with the hoe during the season of growth.

Sandy soils need little exposure to the atmosphere, for they are generally in a fine state, and easily worked at almost any time. The best method of improving these soils is to liberally enrich the lower soil brought to the surface. In gardens, by saving the refuse from the houses and potting shed, mixing them with vegetable refuse to increase the organic matter of the soil, great changes can be brought about in a few years and the soil deepened considerably, and the absorbing power is also improved. This must be one of the first objects of those who have soils of this nature to contend with. I have found heavy dressings of clay spread upon the surface during autumn and winter, after digging, improve the land, and prove of greater advantage to the crop than heavy dressings of manure. It is an excellent plan, as soon as a crop has been cleared from the land, to sow the seed of some quick deep-rooting plant such as white Mustard, so that it will grow and cover the soil quickly. These, when dug in deeply, slowly decompose, and furnish plant food for the next crop. The land does not lose by this method, but the reverse, it gains, for not only is what is taken from the soil by the plant returned, but also that which it has received from the atmosphere. As I alluded to manures for heavy lands I may also refer to them for light soils, the application of the two being totally dissimilar. For light lands the manure should have been carefully prepared, and then supplied in a highly fermented condition, not at digging time, but just before the crop is placed in the soil. By this system there is less loss of the valuable ingredients of the manure than by any other method. If applied, and subjected to autumn, winter, and spring rains, the whole, or nearly the whole, of its manurial properties would be carried through the soil. Light soils possess little or no power of holding or fixing the fertilising ingredients of manure, allowing them to be washed out or escape in the form of gases. Hence the importance of improving the absorbing and retaining power of these soils.

When soils have been deepened sufficiently to allow of trenching we strongly advise attention to this important work. If the ground is trenched periodically the lower spit may with safety be brought to the surface in autumn, when all trenching should be performed if practicable. I hesitate, however, to bring up the whole of the lower spit if it had laid below over four years. Even at that time if the surface is dry after it has been well pulverised, which it sometimes is during February, it is turned again with a fork so as to expose the lower part of the soil or any lumps that have not been thoroughly reduced.—W. BARDNEY.

RICHARDIAS.

THE method of cultivation to be adopted with the above chiefly depends on whether they are grown for market or for general use in a private garden. I will give my experience as regards the second case. There is no doubt a difference of opinion respecting the planting out of these during the summer months or letting them remain in the same pots for years. I am an advocate for dividing and planting each year after flowering. Towards the middle of April trenches are made 3 feet deep and 2 feet wide, a layer of manure is placed in the bottom and forked ready for planting out the roots in May. Care should be taken to arrange and divide in proportion to the size of pot the plants are to be placed in when lifted again in the autumn, the largest being

selected first. After the planting I always make it a rule to insert stakes and tie up the leaves until they show signs of decay. When they are taken away a dressing of soot is applied and some of the soil placed on from the sides of the trench. Soon they will commence to make new growth, when another application of manure from a spent Mushroom bed is given as a top-dressing, and should the season prove to be a dry one, copious waterings should be given. Where space is no object care should be taken not to crowd them in planting. Not later than the first week in August they are again lifted and potted. Give plenty of drainage; a mixture of soil, the rougher the better, so as to keep open during the winter months. Tie up the leaves. Choose a somewhat shady aspect. Water and syringe them a few times until they are established in their pots. As soon as there is any danger of frost remove them to a cool house, and when required for flowering introduce the plants into a temperature of 60° by day and 50° by night, watering frequently with liquid manure provided the drainage is good. Admit a good circulation of air on all favourable occasions. Those remaining in the same pots year after year may be plunged in a bed of ashes during the summer months, and supplied with weak liquid manure during their process of making new growth. Top-dress with soil before housing for the winter. These plants are worthy of a house to themselves, if possible, whilst they are flowering, as by being intermixed with other flowering plants they are apt to be drawn up weakly, and often ruined by aphides, which must be checked as soon as it appears.—A. E.

AMARYLLISES ALL THE YEAR ROUND.

WHEN the richly coloured blooms of the *Amaryllis* are observed giving warmth to glass structures in the cold and cheerless days of winter they naturally arrest attention. It is possible that there are many persons to whom the existence of a section of these plants amenable to treatment for an all the year round display, and which are, moreover, evergreen, is even yet unknown, although upwards of ten years have elapsed since the first of the race was honoured with a first class certificate by the Royal Horticultural Society. In few gardens, at all events, are any of the varieties found. Though the pioneer was admittedly beautiful and possessed of valuable distinctive characters, and although it was quickly followed by others of even greater charm, widespread attention was never won by the new group. It is probable enough that the lukewarmness of their welcome was largely a result of their being put into direct but unfair comparison with the magnificent hybrids of the *Leopoldi* race, and also, but in a minor measure, to the fact that due consideration was not accorded to their period and duration of flowering. The comparison with the larger section was unfair; firstly, because the first fruits of a new departure were contrasted with the choicest products of a long course of hybridisation and cross-breeding; secondly, and chiefly, because the character and uses of the smaller group were widely dissimilar to the older and more important ones. It is in every way desirable that the true position of a very beautiful and valuable class of flowers should be clearly recognised, and then it may be expected that they will at length enter on the career of usefulness and popularity which they so richly merit.

In Messrs. B. S. Williams & Son's nursery at Holloway there are no more beautiful objects at the present time than plants of the evergreen hybrid *Amaryllis*, *Mrs. William Lee*, bearing four to six beautiful rosy-pink flowers, supported by a vigorous stem rising from handsome striped foliage. The flowers, though somewhat smaller than the finest of the spring-flowering hybrids, are equal to the majority of the small and medium-sized forms in size, and the delicacy of colour, heightened by the soft reticulation, gives the bloom an appearance of singular charm. It would not be easy to over-estimate the value of a good stock of this noble variety in any garden, and it has associates equally attractive. For conspicuous positions in winter arrangements of plants, for relieving the sombre effect of flowerless occupants of conservatories and greenhouses during the dull season, for table and furnishing purposes, it and its co-varieties would be equally serviceable, imparting their unique features of rich yet well-modulated colouring and stately beauty. All that *Amaryllises* are in spring these may be in autumn and winter, and in saying this the necessity for further recapitulation of the various modes in which the plants would prove acceptable is obviated.

Mrs. William Lee was not the first arrival. The forerunner of the race was *Mrs. Garfield*, first exhibited in 1881. This variety marked the realisation of an object long striven for—namely, the production of hybrids in which the beautiful leaf-marking and evergreen character of *Amaryllis reticulata* were combined with the large flowers and brilliant colours of the other forms. The variety was the result of a cross between *A. reticulata* and

A. Defiance. The certificate which it received was well deserved; the neglect into which it relapsed was not. The growth was sturdy and vigorous, the habit good, the flowers were freely borne, and the colour was eminently pleasing. It consisted of a delicate rose veining on a pure white ground, and the size of the blooms was a great advance upon *A. reticulata*.

Encouraged to further efforts, Messrs. Williams continued their work, and three years later *Mrs. William Lee* was distributed. In 1885 this was followed by another beautiful variety named *Comte de Germiny*, remarkable for great richness of colour, large size, and vigorous growth. The flowers are very freely produced, and in colour may be described as rosy carmine veined with crimson, a white bar passing down the centre of each segment. The foliage, like the others, is reticulated and evergreen. This magnificent variety marked a great advance, and also received a first-class certificate. Subsequently they added to the list *G. Firth* and *J. R. Pitcher*. The former is distinguished by a broad stripe of white along the centre of each leaf, and by its bright reddish-crimson flowers. This is a markedly autumn-blooming variety, and is a vigorous grower of good habit. *J. R. Pitcher* has been recently brought out. It has rich crimson-carmine flowers, very distinct and beautiful. It is a strong grower and very floriferous, so that it may be expected to share an honoured place when the section to which it belongs receives due recognition. In addition to these varieties there are several other lovely seedlings at Holloway, while several beautiful varieties have been raised by Messrs. Veitch and Sons, and others on the Continent.

It is perhaps as a foliage plant that *Amaryllis reticulata* has been most prized, and certainly few are more remarkable for beauty of leafage. Its flowers, though most pleasing in colour, are too small to compare with those of the ennobled hybrids that are now so numerous. In the newer group, however, it is important to bear in mind that with the improvement in the flowers there is retained much attractiveness of foliage. In this there are clear traces of the *reticulata* parentage, and even when the plants are not in bloom they are by no means devoid of beauty, a point that is emphasised by their ever green and ever variegated character, for this feature at least they retain all the year round. Moreover, when a number of plants are grown flowers may be had practically during the whole of the year. In late spring, when the majority of their relatives are in bloom, special value cannot be claimed for them; but in autumn and winter a different tale may be told. There are few who would not appreciate well-flowered *Amaryllis* at Christmas, and both before and after that time they may be had in beauty. In them we are provided with a new evergreen for the festive season.

These *Amaryllises* are not, of course, dried off, like the spring bloomers, at any period of the year. The latter lose their foliage as winter approaches, and from that time until they come into flower are the reverse of beautiful objects, gorgeous though they are when in full bloom. The evergreens are best grown in a stove or warm structure throughout the year, and never totally deprived of water, although the supply should be diminished when the flowering is over. Practically they are in growth from January to December, and when in full vigour must have abundant supplies of water. They produce a mass of fleshy roots, which constitute a legion of thirsty throats, impatient of any approach to dryness. It is difficult to supply too much water when the pots are well filled with roots, and fertilisers or liquid manure in a weak state may be given with advantage when the growth is being matured prior to blooming. It is a very easy matter to insure a succession of flowers, being almost entirely a question of heat. Where several or many plants are grown some may be forwarded and others kept back, and in due course they may be thus got into a regular way of flowering at different periods. They will bloom when the growth is matured, which will be at different seasons under the treatment indicated, and thus may be had in bloom all the year round.

The plants may be repotted in spring, not necessarily every season, but in this case special care must be taken to supply them with a rich store of food. Sound turfy loam, with a sixth of decayed manure and a good dash of sand will suit them well; or their wants would be equally, perhaps better, met, by substituting a sprinkling of half-inch bones and crushed charcoal for the manure, and using these in association with the loam. Good drainage is necessary, and a few lumps of charcoal may be placed over a thin layer of crocks to provide it.

Amateurs whose glass conveniences are limited could practise a simpler method of culture by placing the plants in a warm position out of doors during the summer, shading the pots from the fierce heat of the sun and giving abundance of water, two or three times a day if necessary, as drought would be ruinous. The plants could be brought in again in autumn, and provided they had made satisfactory progress as a result of unremitting attention, they would

bloom well in due course, the exact period depending upon the amount of heat accorded. The points are to insure steady uninterrupted growth and its subsequent maturation, avoiding drying-off at any stage.

"At whatever period they may bloom these evergreen Amaryllises will be welcomed by gardeners and amateurs alike. Their beauty is great and their uses many. It is sincerely to be hoped that the time is not far distant when both these facts will have wide recognition.—W. P. WRIGHT.

OPEN AIR PEACHES.

WHOEVER "Nous Verrons" may be, I should like to ask if he is writing for writing's sake, or if he really wishes to gain additional knowledge? His last paragraph on page 144 is the best he has contributed. No one can employ language not strictly courteous without weakening his case. I have no personal knowledge of Mr. Iggulden; I read his writings with pleasure and profit, and, as your able correspondent "W. H. W." truly remarks, his successes at various competitions are sufficient for all reasonable men. With respect to "Nous Verrons" question, I have only to say that if I took charge of a garden in November I should feel it my duty, as I did in May, to at once consider the best means of action for producing desired results, and if to bring about those results required exceptional treatment it would be given as well as my knowledge of science and gardening would allow. My only object was to show what could be done, with care, if occasion required it, to attain a particular object in the shortest possible time. When "Nous Verrons" signs his name to his writings he will interpret his curious pseudonym and "we shall see."—JOHN CHINNER.

IF "Nous Verrons" had avoided personalities at the outset and been content to attack my practice, or what was advanced as such, also contrived to prove that it really was "in the interest of science and good gardening that the subject was brought to the front," I should have been very well pleased to have fought the matter out with him. What I have to show at Marston does not greatly affect the case. I will go further, and maintain that if we had not a single Peach or Nectarine tree it would be no justifiable hindrance to my writing the article under the above heading on page 144. If it were, how comes it that one of the very best works on hardy fruit ever written should have met with such unqualified approval, seeing that the author, to my certain knowledge, has not practised fruit culture for the past sixteen years? Can he point with pride to splendid examples of his cultural skill? I think not. Then we have another grand work in the press also on fruit culture, and this again is bound to be well received, even by those who are well aware the writer does most of his gardening within "sound of Bow Bells," or in other words not many miles from Fleet Street. Surely what is right in one case is equally so in the other.

Being somewhat of a pugnacious disposition I will at the risk of being thought inconsistent enter rather more fully in the matter than at first intended. Before doing so let me take this opportunity of thanking "Nous Verrons" for suggesting a title for what I hope on some other occasion to make an interesting and instructive article. Friends who have written privately concerning "Nous Verrons" unfair treatment of my writings generally, for that is what it amounted to, have contributed a few very interesting facts on moving Peach trees in various stages of growth, and this, coupled with my own experience, should provide food for legitimate discussion. It seems to be "Nous Verrons" opinion that I have advanced a "new method" of treating open-air Peach trees, but I maintain nothing of the sort has been done. If I had roundly asserted that the spring was the proper and only time when trees should be root-pruned or shifted, there would have been some point to his argument, but I did no such thing. I distinctly stated on page 79 that the most successful growers rightly attach much importance to the necessity for keeping the roots well up to the surface of the border; and further on intimated that root-pruning and the addition of fresh soil to the border are the surest means of keeping them in this desirable position. I also added that the "autumn, or a short time before the leaves change colour and drop, is perhaps the best time for doing this work," but rather than miss doing it altogether I stated that it is perfectly safe and most advisable that it be practised up to the time the trees are in flower. I mentioned having moved young trees when in flower, not to suggest that this was the best time to shift them, but only to bear out my assertion that it might safely be done. If I accepted the gift of two trees in flower from a friend, and went to the trouble of fetching and replanting them, there was no necessity to state as much, and I fail to see how that rightly could afford a text for preaching a sermon on the crime of neglecting to perform work at the proper time; yet such was not the view of "Nous Verrons." That little bit of tree moving was an experiment conducted "in the interest of science," and there are other experiments on a larger scale to chronicle, these not being altogether "productions of an active mind."

By picking out a short passage here and there it is no very difficult matter to convey the impression that the writer of certain articles has been glaringly inconsistent, and that is what "Nous Verrons" has done on page 144. If I found our young trees were growing far too strongly to be productive they would be root-pruned, or completely lifted and replanted in the autumn, but when they are growing only moderately strongly such severe treatment would most probably do very much more harm than good. If the borders were solely given up to the roots

of the trees there would be much less necessity to root-prune or partially lift so often, but in nine cases out of ten, or probably nineteen out of twenty instances, a clear width of not more than 3 feet is left them, the roots having to contend with the gross rooting vegetables for supremacy. Now if the trees are half lifted every autumn or spring and fresh soil worked in, abundance of healthy root fibres are kept well away from the vegetables and the spade, and the surface culture being of a liberal description, grand crops of fruit are annually produced. Is there any other way of keeping the roots near the surface and well up to the walls? If so "Nous Verrons" will please point it out. Does he maintain that the practice is faulty? If so, I cannot do better than advise him to once more pay a visit to Mr. Challis, Wilton House, Salisbury, or to either Mr. Austin at Witley Hall, or his near neighbour Mr. Young of Abberley Hall, Stourport. To prove that there is nothing new or faulty in the practice I have briefly alluded to of annually lifting the roots, I have only to refer him to what was so well done in that direction by Mr. Bardney when at Norris Green, and also by Mr. Harrison of Knowsley. Unless I am much mistaken "Nous Verrons" is no stranger to either place, and will not venture to criticise the system adopted by both of these successful growers.—W. IGGULDEN.

[Possibly our able correspondent is labouring under a slight misapprehension. He advises his literary opponent to visit certain gardens "once more." We suspect "Nous Verrons" is in a position to state that he has not seen those gardens, and he is certainly actually and creditably employed in the cultivation of Peaches and other kinds of fruit a long way from the sound of Bow Bells. We advise him to await the publication of other communications and then reply on the whole question. He will find plenty of material to deal with, and some good men to combat on this subject.]



ROSE SHOW FIXTURES IN 1892.

- June 21st (Tuesday).—Westminster (N.R.S.).
- " 29th (Wednesday).—Brighton*, Ipswich, and Windsor.
- " 30th (Thursday).—Canterbury, Eltham, Farningham, and Winchester.
- July 2nd (Saturday).—Crystal Palace (N.R.S.)
- " 5th (Tuesday).—Gloucester and Sutton.
- " 6th (Wednesday).—Croydon and Hitchin.
- " 7th (Thursday).—Bath, Lee*, Norwich and Woodbridge.
- " 9th (Saturday).—Reigate.
- " 12th (Tuesday).—Hereford and Wolverhampton.†
- " 14th (Thursday).—Chester (N.R.S.), and Helensburgh.
- " 21st (Thursday).—Trentham and Worksop.
- " 23rd (Saturday).—Bedale.
- " 28th (Thursday).—Southwell.
- " 30th (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.

I shall be glad to receive the dates of other Rose Shows for insertion in the next list, which will appear early next month.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE NATIONAL ROSE SOCIETY.

I HAVE been reading my friend "W. R. Raillem's" Rose notes on page 149 with my usual respect. I have seen the new schedules, and am grateful for the consideration shown to small growers. "Raillem" seems to fear that some of the leading lights among rosarians will be alienated; I do not. Where are the leading lights of the future to come from for the most part unless from the lesser lights growing larger and shining more brightly? I condole with your correspondent heartily in the difficulty of making his garden grow good Roses, but he succeeds as others have done. Let him call to mind our late friend Mr. Baker's garden at Reigate, made in an old gravel pit. "Raillem" is too modest in calling himself a fourth-prize man. I reckon him one of the best twelve amateur rosarians of England. Personally, for my own chances, I should like to see a sixth or seventh prize.—F. H. LLAG.

MR. GRANT'S PROGRESS.

I AM sure Mr. Grant's personal friends, and all lovers of the Rose, will be glad to hear that I have had a letter from Mrs. Grant in which she says, "You will be, I am sure, glad to hear that my husband is still progressing very favourably. He was so glad to see your handwriting again; he was able to read your letter for himself. His arm is taken out of the splints, and has done so well that no operation will be needed. He is very cheerful, and hopes to see you all again."—D., *Deal.*

HEREFORDSHIRE AND WEST OF ENGLAND SOCIETY.

AT the annual general meeting of this Society a satisfactory state of affairs was disclosed in the Rev. F. R. Burnside's secretarial report. They had had a very successful season in 1891, which completed the twenty-fifth year of the Society's existence, and carried forward a

balance of £13 ls. 11d., as a result of the financial operation. The Show for the present season is to be held in the grounds of the Castle Green, Hereford, on July 12th. The Committee and all the honorary officers were re-elected.

THE SHEFFIELD BOTANICAL AND HORTICULTURAL SOCIETY.

THE forty-eighth annual report of the above-named Society (founded in 1844) came to hand as a little volume of seventy-four pages, dealing with the work of the past year, comprising lists of members, plants received, regulations, deed of constitution, by-laws, and a paper on Ferns by the new Curator, Mr. W. Harrow. It is altogether an interesting production, and seems to indicate a renewal of vitality which many will be glad to see, for during Mr. Ewing's curatorship many notable horticultural gatherings were held in these gardens. It will be remembered that some time since Mr. Ewing retired, and it appears, from the accounts before us, that he is allowed the well-earned pension of £110 per annum. Mr. William Harrow, who was appointed Curator at the close of last year, was selected from over ninety applicants, and has had about eight years' experience in the Botanic Gardens, two at Kew and six at Cambridge; he also has several certificates, and will, no doubt, with fitting opportunities, add to the reputation of the gardens.

The total income of the Society for the past year was £2378 13s. 8d., of which £1325 15s. was derived from subscriptions, and there seems to be an available surplus of £102 ls. 10d. The list of members occupies twenty-two pages, about 880 names being included. The officers of the Society are as follows:—President: Mr. W. E. Clegg. Vice-President: Mr. W. M. Eadon. Committee: Messrs. Jarvis W. Barber, B. P. Broomhead, Colton-Fox, B. T. Burdekin, W. H. Crowley, Harry Fisher, C. D. Pettinger, T. W. Sorby, Geo. H. Waterfall, Geo. E. Webster, F. C. Wild, and J. B. Wostinholm. Secretary: Mr. T. G. Shuttleworth, Queen Insurance Buildings, Church Street, Sheffield.

FERNS.

The following notes are extracted from Mr. Harrow's paper mentioned above:—

Ferns rank among the fairest gems of the vegetable kingdom; there are no other plants to be compared with them that possess such graceful and beautiful foliage or such a diversity of pleasing shades of green. The forms of their leaves (usually termed fronds) are innumerable in outline, some of them hair-like, as *Trichomanes trichodeum*, a West Indian species; many others being so delicate in structure as to be almost transparent. These qualities, as well as many other points of interest, have won for them true admiration with the plant-loving community of our country.

The number of distinct species known is estimated in round numbers at 3000. The number of varietal forms in cultivation are almost legion; especially is this the case with some of our British species, which are prone to run into varieties, many of them meritorious to a high degree as garden plants, and which at the present time are highly prized by lovers of hardy Ferns. Out of the above number of known Ferns not more than fifty distinct species are contributed by the British Isles, and out of this number thirty-six have been recorded as indigenous to the county of Yorkshire. The number of Ferns as distinct species under cultivation at the present is little more than a thousand, and, judging from specimens to be seen in Herbaria, there yet remains many choice and beautiful forms to be introduced from their native habitats.

At no period were Ferns so extensively cultivated as at the present. Many growers for market produce annually thousands and thousands of a few popular species and varieties, which are particularly adapted for general decorative purposes to meet the ever-increasing demand. About seventy years ago (according to J. Smith, one of the past Curators of the Royal Gardens, Kew, who made Ferns his special branch of study, and who was instrumental in introducing many new species from abroad) there were not more than forty species in the Kew collection, and this number may be taken to represent those under cultivation in this country at that period; whilst in 1845 the number had risen to 348, and from the former date up to the present time the number of species in cultivation has been gradually increasing, and newly introduced species and varieties of merit command high prices.

Fragrant Ferns.—Fragrance among Ferns is not usually sought after, though there are several which emit a pleasing odour, while there are one or two which are entirely the reverse from pleasant smelling; in fact, disagreeable to the senses. The fragrance is doubtless due to the presence of glands in the leaves. The following may be noted as amongst the most conspicuous:—

Polypodium Phymatodes, Ceylon, Mauritius, &c.—The odour of the leaves of this species when dried has been compared to that of a Tonquin Bean (*Dipterix odorata*), which is used for scenting snuffs and other tobaccos. Specimens which have been preserved in the Kew Herbarium for nearly thirty years are now perceptibly fragrant, though they have been subjected to a strong dressing of corrosive sublimate. *Polypodium nigrescens*, Malayan and Pacific Islands.—The leaves of this are fragrant when dry. *Polypodium pustulatum*, New Zealand.—More fragrant than either of the above. The natives of New Zealand use it to scent their food and oil. *Nephrodium æmulum*, British.—Hay scented. *Nephrodium montanum*, Europe.—The leaves when bruised emit a lemon-like odour. *Nephrodium fragrans*, North Temperate Zone.—Primrose scented. *Nephrodium odoratum*, Tropical Asia.—Compared by some to the pungent odour of mustard. *Nephrodium patens*.—Common in

the Tropics.—Apple scented; very frequently met with in green-houses. *Dicksonia punctiloba*, North America.—Known in Kentucky as the Sweet-smelling Fern. *Adiantum trapeziforme*, var. *Catherinæ*.—This is of much dwarfer growth than the species, and possesses an odour very similar to Black Currant leaves when bruised. *Anemia Phyllitidis*, var. *foetida*.—This agrees with its varietal name, and emits a very unpleasant odour. *Mohria caffrorum*, Cape.—This smells of benzoin. *Angiopteris evecta*, Tropics of Old World.—The bruised leaves give an agreeable scent to cocoa-nut oil.

Adiantums.—These Ferns are popularly known as "Maidenhair," which name, according to certain authorities, has reference to the light and elegant growth of certain species of the genus, though, according to J. Smith, the name originates from the fact of a syrup being at one time prepared from *Adiantum Capillus-Veneris*, the British Maidenhair, and known in commerce as *Capillaire*, it being used by women in dressing their hair for the purpose of promoting its growth. *Adiantum pedatum*, North American species, is reputed to be in use for the above purpose amongst the North Americans.

There are some eighty-five to ninety species, and a large number of varieties comprising this genus. The leaves are most variable in size, form, and habit; some are particularly suited for basket culture, others for the greenhouse, two for the open air in some localities, but the majority are more successfully grown in a warm structure or stove.

Maidenhair Ferns are not difficult to cultivate, and may be grown with good effect amongst other plants; but where very fine examples are desired it is better to locate them to a suitable part of the house, so that they may be subjected to the same treatment, as far as practicable. Should the house be a span-roof structure, running north and south, the best position will be on the east side; if a west or north-west aspect, place them in the lightest position. The first important consideration in the cultivation of Ferns, or any other pot plants, is perfect drainage and clean pots. Another essential item, but one often overlooked, is to examine the drainage holes to see if they are of sufficient size for the plant or plants about to be placed in them. With many manufacturers of flower-pots the drain holes are invariably too small, and where such is the case the holes should be made larger. The depth of drainage should be regulated by the size of pots in use, and the nature of the specimens to be potted. Over the drainage place a layer of fibrous loam, from which the loose particles have been shaken out. The compost should consist of three parts of good strong fibrous loam, broken up into pieces about the size of a hen's egg for large pots; add to this some half-rotted leaf soil and finely sifted broken pot dust to form the fourth part, with sufficient coarse sand to make the whole porous. Many writers recommend peat to form a portion of the compost, but this should be entirely dispensed with as regards the genus in question; the growth made from using the above compost is more durable and stronger than when peat forms a part of its composition. Avoid using a potting stick for making the soil firm, but simply use the fingers (not the thumbs), unless it be with large specimens, where it is sometimes impossible to perform the operation entirely with the fingers. Let the compost reach nearly to the rim of the pot. The great advantage gained by potting with this compost is that they will need no further attention in this direction for some two or three years, and make the best possible growth. Specimens grown in pots from 12 to 18 inches diameter are large enough for the generality of establishments, and as soon as these commence to show signs of exhaustion turn them out of their pots, cut them into halves or quarters, and in repotting see that the pieces are reversed. The best time for performing this operation is the beginning of February or latter end of January. Keep them near to the glass, shading during the brightest part of the summer. The blinds should in no case be permanent, but be taken off or rolled up as soon as the sun is off that portion of the house where they are placed. The stages upon which they are grown should be covered with shingle of a small size, or any other desirable material which answers the purpose of allowing the water to drain from the pots, and assists in keeping the stages moist.

The foliage should never be syringed, but the stages and other available surfaces should be frequently damped during the day in dry, hot weather. During the winter months this operation will not be needed, with regard to those grown in the stove, more than once or twice a day, that is if the heating and ventilating of the house is properly managed. Those grown in the greenhouse will not require the stages damped very often during the winter. If the above operation is done late in the day it has a most injurious effect upon the freshness of the foliage. More especially is this the case if the temperature is allowed to fall too low during the night. The minimum temperature for stove Ferns during the winter should be from 55° to 60°, and in very cold weather it should fall 5° lower. The day temperature should have a corresponding rise of 5° to 10°. Summer temperature for night, 60° to 65°, with a rise of 10° to 15° during the day. Greenhouse Ferns should have a minimum winter night temperature of 40° to 45°, with a rise of 5° to 10° during the day, keeping the temperature down during the summer by the application of water upon the stages, &c., instead of cooling it by opening the ventilators to a too great extent. Ferneries, both cool and warm, should be constructed with bottom ventilation, unless where they are to a great extent hidden below the ground.

Insects are not particularly troublesome to these Ferns. Green fly, scale, and a small white fly may at times be found amongst them. The former should be eradicated by tobacco powder; scale should be picked off with a small stick and the fingers; the small white fly may be despatched by placing in the evaporating troughs a solution of tobacco juice, or by a free application of soot upon the stages. Centipedes are,

when present in a house in which Maidenhair Ferns are grown, very troublesome, as they eat the centres from the young leaves just as they are springing from the soil. These should be trapped by some of the methods in common use and destroyed. A preventive of their devouring them is to dust the young leaves with tobacco powder or common pepper.



HARDY FRUIT GARDEN.

PEACHES AND NECTARINES ON WALLS.—Where these are trained on outside walls, and have been loosened during the winter, they should now be nailed or tied in before the buds get too far advanced, and consequently in danger of being rubbed off. Little or no pruning should now be required, as under good management the growths are properly regulated during the summer months, but any old wood not likely to be of use, also some growths on the upper parts of the trees, may be removed if not fairly furnished with flower buds. Before fastening the trees permanently see that the walls are well cleaned, and the branches of the trees free from insects. If the latter or mildew were at all troublesome the previous year syringe both trees and walls with a solution at a temperature of about 110° of Gishurst compound, or other well proved insecticide, using according to the directions supplied by the vendors. The surface soil should also be removed, and if the ground below it appears to be at all dry a copious watering should be given, afterwards mulching the surface with a little decayed manure and fresh loam. Protecting material should also be ready for use. Where moveable copings are used, glazed or otherwise, they should be fixed and the blinds attached, but not let down until the trees are further advanced and frosts or cutting winds are apprehended, unless it be in the middle of sunny days when it is wished to retard the trees. When the flowers, however, commence opening the mid-day shading must be discontinued, and all the sunshine possible admitted.

ARREARS.—All necessary pruning, thinning, or refastening of other fruit trees on walls should be completed at once. If the ground is too damp and adhesive to stand upon without clogging the feet with soil, lay a board down to walk upon. This is a little matter, but important.

GOOSEBERRIES.—These will now need attention, so that the shoots are not denuded of their fast swelling buds by sparrows and bullfinches. Most people find black cotton interlaced across the trees a good preventive, whilst others use fish nets or small mesh galvanised wire netting fixed upon stout posts. In some cases late pruning of the bushes is practised, but it is not advisable to leave them unpruned any longer. A good dusting of soot and quicklime in equal parts applied over the bushes on a damp day will preserve the buds, benefit the roots of the trees, and destroy vermin.

CURRANTS.—Red and White Currants should have their final pruning if not already done, spurring the side shoots back to one or two good buds, and shortening the ends of the branches, where there is room for extension, to about 6 inches. Give the ground beneath the bushes a sprinkling of fresh soot, or soot and lime mixed, and shortly afterwards apply a rich mulching of manure over the roots when the ground is not pasty. This will not only furnish a supply of nourishment to the active root fibres near the surface, but will tend to keep the soil uniformly moist, and encourage the multiplication of feeding fibres near the surface, instead of their having to seek for food in deeper and possibly inert soil. Black Currants when pruned should only have the old wood removed, all strong shoots being retained at full length except where shoots are required for furnishing a particular part. In other respects the same treatment should be afforded as to Red and White varieties.

LIQUID MANURE FOR FRUIT TREES.—The present is often a convenient time for emptying tanks of liquid manure, and it may be applied with very beneficial results to most fruit trees, whether bushes, standards, pyramids, espalier, or wall trees, if established, and in need of more nourishment than the soil affords. If the liquid manure is very strong dilute with soapsuds or clean water.

STANDARD FRUIT TREES.—A final survey should be taken of orchards or plantations of these to see that no dead wood exists, and the branches are not too crowded. Moss and lichen if present should be removed by first scraping off the thickest of the parasites, and then dusting the stems and branches thickly when damp with freshly slaked lime.

STRAWBERRIES.—Groundsel and other strong weeds in Strawberry plantations should be uprooted before they gain stronger hold of the soil. Groundsel if allowed to seed causes much trouble. Mulch between the rows with rich manure, and the crops of fruit that follow will astonish the grower if the plants are strong and in a full bearing condition, betokened by plump, bold crowns now.

SCIONS FOR GRAFTING.—These should be cut at once, and laid-in in the ground in a cool place if they have not already been secured, as it is essential that the sap movement in the stocks be in advance of the scions when the grafting is done.

FRUIT FORCING.

PINES.—A batch of suckers should now be started to afford a supply of ripe fruit from about December onward through the winter and early summer months. The pots most suitable are 5 to 7-inch according to the size of the suckers, and should be perfectly clean and dry. Place about an inch of moderate sized crocks in them for drainage; employ fibrous loam torn up moderately small as a rooting medium, rejecting the dust, pressing the soil firmly about the base of the suckers, and plunge in a hotbed of 90° to 95° at the base of the pots. No water should be applied until new roots are formed; they are usually emitted in ten days to a fortnight. A moist close pit is a suitable place for suckers, where they can be near the glass, and unless the weather be very bright they will not need syringing, but in bright weather slight shading will be necessary for an hour or two at midday, and a light syringing through a fine rose will be necessary about twice a week. The temperature should be kept at 55° to 65° by artificial means, with 5° to 10° or 15° rise from sun heat. Any young plants in an unsatisfactory state should be shaken out and repotted after disrooting, treating them as advised for the suckers. Any stools with small suckers should have the latter left upon them until May or early June and then potted. Old plants from which the fruit has been cut and the leaves also should be placed closely together in any pit having a moderate top and bottom heat, where light and air can be obtained so as to insure sturdy suckers, which are the most satisfactory.

The plants started in December are now showing fruit, and to accelerate the ripening the temperature should be maintained at 65° to 70° by artificial means, with 5° to 10° advance under favouring conditions. These plants are best in a house to themselves, but where they cannot be so accommodated they should be placed at the warmest end of the fruiting house. With the fruit progressing the plants will require water more frequently at the roots, and should be examined once a week for affording a supply when needed. Recently started fruiting plants must be kept at 65° by night and 70° by day, keeping the atmosphere for these plants and fruiters generally moist by damping available surfaces, watering as required with liquid manure in a weak and tepid state, 1 lb. of guano to 20 gallons of water forming an excellent stimulant for Pines.

FIGS.—Earliest Forced Trees in Pots.—The first swelling of the fruits on trees started in November will soon be completed; they remain stationary for some time in the process of flowering, and, as this is the most critical stage in their culture, every care must be taken to avert a check. Insufficient moisture or excessive fire heat will cause the fruits to drop when they should be commencing their last swelling. Therefore, keep the temperature steady; if mild, it may be kept at 60° to 65° at night, but if the weather is cold 5° less is safer, and what is lost at night may be gained in the daytime by closing with plenty of heat and moisture, when a rise of from 10° to 15° may be indulged in without producing a weak or elongated growth, keeping the temperature through the day with gleams of sun at 70° to 75°, otherwise maintain 65° artificially. Afford copious syringings on all favourable occasions, as a means of keeping down red spider. It is prone to attack the foliage most in close proximity to the hot-water pipes, and should be prevented spreading by sponging the leaves carefully with soapy water, 2 ozs. of soft soap to a gallon of water. To encourage the swelling of the fruit, top-dressings of rich material should be applied to the surface of the pots; a layer of turves round the rims, or bands of zinc about 4 inches wide placed inside the rims, afford space for the top-dressings, giving them at intervals, a little at a time, as the roots like fresh material. Supply tepid liquid manure steadily to the roots, giving it in sufficient quantity to pass through the pots. Avoid crowding the growths, stopping at about the fifth leaf, tying out the shoots as the growth advances, and cutting out superfluous shoots. These are, however, best prevented by rubbing them off early so as to give those left all the light possible. The fruit, to have colour and high flavour, must have full exposure to light, and a circulation of warm, rather dry air.

Planted-out Fig Trees.—Those started early in the year will require disbudding, removing all the overcrowded shoots, and where there is not room for laying-in a long shoot, yet space for some growths, the shoots may be pinched at the fifth or sixth leaf to form well developed so-called spurs for the second crop, the leading and successional shoots, where there is space, being allowed to extend, as these invariably afford the finest fruits and longest succession. Water the border as required with tepid liquid manure, taking care not to apply it too strong, and mulch with an inch of roughish rich compost, which attracts the roots to the surface. Trees in restricted borders and needing more support may have roots encouraged from the collar or stem by placing fibrous pieces of turf interspersed with lime rubbish and manure in contact with it, and by extending the material outwards a quantity of feeders will be secured, which, if duly supplied with liquid manure, will greatly assist the fruit in swelling. Syringe the trees twice a day in favourable weather, damping only on dull days, and keep the mulching constantly moistened.

Young Trees in Pots.—Shift those intended for next year's forcing, potting firmly, and afford gentle bottom heat. Shade slightly from bright sunshine for a few days until they show signs of having taken to the new soil, when they should be fully exposed to light. Pinch the growths so as to insure a sturdy well furnished head, training with a single stem of 8 to 12 inches.

CHERRY HOUSES.—Ventilation is the main art in forcing Cherries, and requires unremitting attention. A free circulation of air should pass through the house whenever the temperature exceeds 50°, regulating the

amount by the conditions of the external atmosphere. Employ fire heat only to maintain 50° through the day, relying on sun heat for advancement, and maintain a night temperature of 40° to 45°. The blossoming over and the fruit swelling recourse may again be had to syringing, but avoid keeping the trees dripping with water, always allowing the foliage to become fairly dry before night. Keep a keen eye on aphides and promptly fumigate, or syringe the trees with quassia water. This may be made by steeping 4 ozs. of chips overnight in a gallon of soft water, boiling fifteen minutes, and dissolving in it as it cools 2 ozs. of soft soap, straining and adding water to make one gallon, as some liquid is lost in boiling. Look carefully over the trees for grubs; one kind, a species of Tortrix, rolls itself up in the leaves, and can be eradicated by squeezing between the thumb and finger, but the other becomes encaased on the under side of the leaves, giving the appearance of being scalded, and from the leaves it passes to the cherries, eating and spoiling them. The only remedy is to search for and destroy the grubs. Supply water or liquid manure to the border as required, keeping trees in pots well supplied, and afford top dressings of rich material. Pinch side growths at the fourth or fifth leaf, heeling in extensions or growths required to cover vacant spaces.

CUCUMBERS.—Light and sun heat increase the evaporation, necessitating a greater supply of atmospheric moisture, therefore damp the house twice a day, and syringe the plants lightly early on bright afternoons. On cold nights 65° is ample, but in mild weather allow 5° more, maintaining 70° to 75° by day, and 80° to 85° or 90° from sun heat, closing early so as to increase the heat to 90° or more. Afford liquid manure once or twice a week, always tepid, never too strong. Cut the fruit directly it is large enough, as it deteriorates by retention and weakens the plant. Cucumbers keep fresh for several days with the stalks inserted in a saucer of water. Stop the shoots one joint beyond the fruit, thin the fruits well, removing superfluous growth, tendrils, bad leaves, and male blossoms. Ventilate early and carefully, avoiding draughts and depressions of temperature.

Plants in Pits and Frames.—These have had a hard time, the temperature being with difficulty kept up without a superabundance of moisture. Cover the lights at night, and prepare materials for fresh beds and for lining, sowing seeds as occasional plants are required.

MELONS.—A ridge about 2 feet wide at the base with the top flattened, so as to give a depth of 10 or 12 inches, is preferable to hillocks, though these may be made about the same in diameter as the width of the ridge, and its depth at the places where the plants are to be put out 2½ to 3 feet apart. The soil should be firm, and when warm planting may be done, keeping the seed leaves clear of the soil. The leading shoots should be taken up without stopping until two-thirds the distance is reached they are intended to travel, then pinch out the point of each, and rub off the laterals to the height of the trellis. Some varieties show fruit freely on the first laterals, and as early fruit is a main feature with the plants, allow them to remain, taking out the point at the joint above the fruit at the time of fertilising the blossom. To allow all the laterals to remain would very much overcrowd the foliage, therefore rub off whilst quite young every alternate one. If the laterals do not show fruit at the second or third joint pinch them at those points, and the succeeding growths will show fruit. Train the growths thinly and regularly, so that every part is equally furnished with foliage, all having due exposure to light.

Melons in Pits and Frames.—Plants to have the shoots trained over the surface of the bed should be stopped at the second leaf before or after planting-out, causing two shoots to follow, and these in turn being pinched will give four shoots, two to be taken to the front and two to the back of the frame. Other growths that appear near the collar of the plants should be rubbed off whilst quite young, not encouraging any laterals nearer the stem than 6 inches, as it is necessary to keep the collar clear. Stop the principal shoots when within a foot of the sides of the pit or frame, thus throwing vigour into the laterals, and the growths must not be crowded. The laterals will show fruit at the second or third joint, and they should be pinched one joint beyond the fruit, but not until the blossom is fertilised. Little water will be required, nevertheless maintain the soil in a moist state, but avoid a saturated condition. Cover the lights with double mats at night, and see that the linings are regularly attended to, renewing as required. Prepare material for fresh beds and linings. Three parts Oak, Spanish Chestnut, or Beech leaves, and one part stable litter make the best beds, mixing the materials about a fortnight before it is desired to make the beds. In a few days it will be seen whether there is enough moisture to insure fermentation; if not turn the whole, and sprinkle with water or liquid manure so as to moisten the mass, and when in good heat turn the heap outside to inside, two or three turnings being required at intervals of about four days. Maintain the bottom heat at 85° to 90°, taking care, however, to prevent overheating.

Melon Houses.—In these more moisture is necessary, therefore sprinkle every available surface, except the hot-water pipes and plants, in the morning of bright days, and again at closing time or early in the afternoon. Ventilate carefully, avoiding currents of cold air, and place some hexagon netting or coarse scrim canvas over the ventilators when the outside air is sharp. Maintain a night temperature of 65°, 5° more in mild and 5° less in cold weather, a rather low night temperature being better than a high and dry one, yet it must not be of long duration or the plants become stunted in growth. The day temperature should be kept at 70° to 75°, rising to 80° or 85° from sun heat, and closing early so as to raise it to 90° or more, and keep the bottom heat steady at 80°. Sow seed for raising plants to sustain the succession and shift seedlings

into larger pots, or add soil as the plants advance; stop those for frames at the second rough leaf, but not for trellises.

STRAWBERRIES IN POTS.—The earliest plants now ripening their fruit should have a drier and more freely ventilated house, but there must be no sudden change, or the fruit will not finish well. For swelling, the temperature should be 65° at night, and 70° to 75° by day, advancing to 80° or 85° with sun, and plenty of atmospheric moisture, and after the fruit changes colour the atmosphere should be kept cooler and drier, so as to insure flavour. The second batch of plants have set well, and been thinned, a matter too frequently neglected. This enables the plants to produce grand fruit, half a dozen fine berries being better than a dozen small, but regard must be had to the variety, for half a dozen on La Grosse Sucrée has its equivalent in a dozen on Vicomtesse Héricart de Thury. Give liquid manure copiously, as often as required, examining the plants twice, and in bright weather three times a day, for the purpose. Plants in vineries and Peach houses come on successional, and need not be moved except to meet special requirements. Strawberries of the larger varieties placed in span-roofed frames afford grand fruit a fortnight to three weeks earlier than those in the open ground.

PLANT HOUSES.

Fittonias.—In 2-inch pots these are useful little plants for various forms of decoration. They root readily at almost any season of the year, and may be inserted in the pots in which they are to be grown, and few dwarf plants are more effective when associated with small Ferns or Selaginellas. The two varieties, arranged together as a front margin to the stove or Orchid house, are very pleasing, and the close moist atmosphere of the latter suits them admirably. They are more beautiful when grown in low Orchid pans 4 inches across than when employed in ordinary pots. When arranged at the front of a group of plants these low pans can be tilted so that the plants with their finely marked leaves reach to the base.

Sonerilas.—These are not so useful on the whole as Fittonias, nevertheless where choice plants are grown and appreciated for their chaste beauty a few of these should be included. A few pans in the stove or in the Orchid house are certainly an attraction. These plants grow very well in small baskets in close moist shaded houses. For this purpose the cuttings should be inserted in pans and the plants subsequently dibbled in the baskets, using as a compost rough peat moss and sand. If dewed over twice daily after they are rooted and placed in the baskets they soon cover the material in which they are grown.

Bertolonias.—A stove scarcely seems furnished without a few of these foliage plants. Young plants that have passed the winter well in small pots may be placed into 4-inch, which are large enough for them to develop beautiful leaves. Side shoots on larger plants that were retained, if inserted in small pots in moss and sand, will root quickly in the propagating frame. The atmosphere of the stove is too airy and dry as a rule for these plants, and, until they are developed, we grow them in handlights in the house.

Panicum variegatum.—For many forms of decoration the old Panicum is invaluable. Associated with Selaginella cæsia, it is unquestionably the best edging to the stove, or any warm house, that can be employed. Those rooted in autumn, and now in 60's, may be placed in 5-inch pots, and before the end of the season the growths will hang from the stage to the ground. Cuttings may be also inserted in 5-inch pots. This plant is suitable for baskets, and in a few months these have a very attractive appearance.

Selaginella cæsia.—Established plants should be broken up and placed in 5-inch pots in any light sandy soil. These will start freely in a vinery where the temperature is 55°, and when they have started into growth they can be taken to the stove or any position in which they may be required.

Nepenthes.—Plants that have grown tall should be cut down to within 6 inches of the base. The stem may be cut into lengths of two leaves to each; these if inserted in sphagnum moss and sand, and plunged in brisk heat in the propagating frame, will soon root. Plants which have made four or five leaves, and are not required for stock, may be pinched; this insures their breaking and pithing freely. If they are allowed to "run away" they soon cease to produce pitchers. When the plants are grown in baskets and need larger ones it is the best plan to place the old baskets inside the new, and then fill in with rough peat, lumps of charcoal, and sphagnum moss. These plants are subject to thrips, and the best method of eradicating them is to tie the basket in a piece of close tiffany, and then syringe thoroughly over a tank containing a solution of tobacco water. If the basket is not covered the thrips drop into the moss, and are not long before they establish themselves on the plants again.



APIARIAN NOTES.

THE WEATHER IN LANARKSHIRE.

DULL days have prevailed of late. The night temperature has varied from 28° to 32°, and the day temperature 32° to 38°; but

on the 23rd ult. it rose to 50°, remaining the most part of the day at 47° with bright sunshine. This reduced the snow that fell to a depth of 6 inches on the morning of the 21st ult. to about 1 inch. The barometer for upwards of two weeks has varied from 28.90 to 29.10, but has now risen to 29.80. The continuation of wintry weather has greatly retarded the opening of flowers, but appears to have had no ill effects upon bees. They flew for several hours on the 23rd, while the ground was covered with snow; but as I had previously removed this from the alighting boards, and for some distance in front of the hives, few bees were lost. A dry floor and alighting board strengthen the bees wonderfully in their spring airings. Many young bees were on the wing, which is good proof of the satisfactory state within.

THE PUNICS.

These were the first and the last to fly, and so far as external appearance indicates I never had hives so far advanced at the end of February. From one Carniolian several drones took flight. The last-named are the hardiest bees of any, consequently the best winterers. The true variety is mild in temper and extra honey gatherers, but unfortunately a spurious variety has been imported, and the bees are as worthless as they are spiteful. But to the Punics. Four bee-keepers having these bees have responded to my solicitation regarding their wintering qualities. Three of them state that their Punics have wintered satisfactorily. One says they appear to be quite hardy, as a mere handful, the remainder of the strongest hive he ever possessed, have survived the severe cold of the 19th. The cause of the great bulk of them dying was the want of food, which he was sorry for, but hopes they will be preserved. The Punics have in every instance behaved themselves differently with us than some writers asserted they would, and I am in hopes that with a fine summer they will surpass our expectations in honey gathering.

MARCH.

Although bees begin to breed about Christmas, and to gather pollen in January and February, even to a greater extent than they sometimes are permitted to do in March, the present is, nevertheless, an interesting time to the bee-keeper. Natural pollen is now plentiful from the catkins of the Willow, Hazel, Alder, and Elm, together with that from the Crocus, Daffodils, and other garden flowers, as also the Tussilago, the main pollen producer of the fields in many places. Although to the farmer and gardener it is an obnoxious weed it affords much pollen, and in fine weather honey.

It is desirable that the bee-keeper estimate the condition of every hive now, and put right what may not be to his mind or the requirements of the bees, but unfortunately March is so fickle that the month not unfrequently passes away without a single fine bee-day, and bees are often allured to their destruction during intermittent glimpses of sunshine and a sudden lowering of temperature. Yet, with all these drawbacks, hives in a normal and healthy condition, with ample stores, will have an enormous quantity of eggs and brood in all stages, which the bees at this season cling to tenaciously and nurse assiduously, so that if the temperature is low feeding becomes a difficulty when they have to leave their combs for it. Then there is the additional risk above mentioned of the bees flying abroad and becoming suddenly chilled. Thus the artificially managed hives, if strong during March, may become weak by April. Many propositions have been made for the management of hives during March, but I have never found anything succeed so well as to leave the bees to their own resources during the fickle month. I could name some years when March was a month of sunshine, and the bee-keeper, had he cared, could have manipulated to his heart's content without much injury accruing to the bees, but even although such opportunities occur it is foolish to entail unnecessary labour where there is nothing to be gained by it.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

E. H. Krelage & Son, Haarlem, Holland.—*Catalogue of Bulbs and Spring Flowering Plants.*
Hogg & Wood, Coldstream.—*Catalogue of Agricultural Seeds.*
Dicksons, Limited, Chester.—*Catalogue of Select Farm Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post and we do not undertake to return rejected communications.

Peas at Shows (A Judge).—The matter on the postcard sent is distinctly an advertisement, and if we were to publish it as you wish others would be speedily forthcoming of the same nature. It is not a record of cultural experience.

Abutilons (J. H. W.).—An article dealing with the history of the garden varieties of Abutilon will shortly be published. You do not, however, say whether the fine-foliage Abutilons or those grown for their flowers are the special object of your inquiry. Both classes will, therefore, be referred to in the article.

Potting Rose Cuttings (Amateur).—The cuttings inserted in a frame last July, which you wish to remove to your new garden, had better be potted now, and returned to the frame, keeping close for a short time, and then harden off by the time you remove. They will remove much more safely than were they taken up and planted in the new garden at once, planting them out in May, with the ball entire.

Magnum Bonum Pea (Yours Truly).—You say "W. S." mentions his village, but does not name it." Name what? He named the village in which he believes the Pea was raised, and also named the Pea. Your letter is not quite so complete as it should be for attaining the object in view, as you have omitted to sign your name. We will send it to "W. S." for the desired information, which shall be sent to you if he can supply it, if you will furnish us with your full postal address.

Bedding Roses (Malden).—We have no doubt that Général Jacqueminot will make a very good bed, and the plants may either be pegged down or allowed to grow bush fashion. If the latter, cut out the most robust and coarse shoots as they are produced, and the bed may be made to assume a tolerably even appearance. We have this and other Roses, grown on their own roots, in beds, and prefer such plants to those on Manetti stocks, when the kinds will succeed in this way. Général Jacqueminot, Jules Margottin, and Souvenir de la Malmaison are good for massing.

Stocks for Budding (E. W.).—The stocks bought in from the nursery ought not to be cut down close to the ground, nor cut at all, unless straggling in growth and having correspondingly poor roots, when a little trimming may be practised, especially on the side growths and unwieldy tops, otherwise the stem must be left intact, and the bud inserted therein at the proper time and at the right place—a smooth part of the bark near the ground. Cutting off close to the ground is only necessary when the stocks are old and the bark has become hardened, so as not to be readily raised with the budding knife haft.

Use of Willow Parings (An Old Subscriber, York).—The peelings of Willows used in basket making are simply vegetable matter, and when reduced to mould have value corresponding to leaf soil, but are not nearly so rich in plant foods as the mould from decayed Oak, Spanish Chestnut, or Beech leaves, or indeed any *débris* of leaves of a softer nature. They consist of bark, which is even poorer than the bark of Oak when reduced to mould, and as a fertiliser less valuable than ordinary leaf soil. Still they are useful for spreading on grass land when sufficiently reduced, and have been used for Potatoes and other potash-requiring plants with advantage, and when thoroughly reduced to mould may be used to the extent of one-third for softwooded plants, taking care to reject any woody portions, which, however, may be added to the soil after being reduced to ash by burning. The decayed "parings" are not desirable for hardwooded plants, being liable to form a close mass more corresponding to bog than heath mould.

Seed Potatoes for Half an Acre of Land (*A Young Gardener*).—Your soil being light and rather high, the distance you propose to have the rows and sets is more than generally given under field culture. Beauty of Hebron is usually placed in rows 27 inches apart, and the sets half that distance asunder in the rows. This is ample, unless the ground is more than ordinarily rich, when it is not good for Potatoes. Magnum Bonum Potatoes are rarely planted more than 30 inches between the rows, and 15 inches apart in the rows in fields, more being considered, and usually is, a waste of space. If you have a quarter of an acre of Beauty of Hebron, and the sets are not less than 2 ozs., and not exceeding 3 ozs., say average $2\frac{1}{2}$ ozs., per set, you will require 4 cwt. 1 qr. 20 lbs. of seed Potatoes; and if you have Magnum Bonum at the distance named and the same weight of set, average $2\frac{1}{2}$ ozs., you will need 3 cwt. 3 qrs. 24 lbs. of sets for the other quarter acre. If you have the rows 3 feet apart, and the sets $1\frac{1}{2}$ foot asunder in the rows, and the sets average $2\frac{1}{2}$ ozs. each, you will require a little over 5 cwt. for the half acre. The quantity of sets necessarily depends on their size and the distance of setting. If the ground is in good heart and the season favourable, you may have 5 tons of Potatoes.

Planting Kidney Potatoes (*W. Abbott*).—Tubers with one central sprout are far better for planting than those with several weak and attenuated shoots, and if yours have been stored in the manner many times advised in the Journal—namely, in shallow boxes or trays



FIG. 25.—KIDNEY POTATO READY FOR PLANTING.

placed in a light, cool, but frost-proof shed or outbuilding—they will perhaps be in a similar condition to the tuber represented in the engraving. If so, you could wish for nothing better. The solitary shoot of the example shown was sturdy, robust, and too firmly fixed to be rubbed off with a touch. With rootlets bristling at the base it was in splendid condition for producing a vigorous plant. Do not cut such tubers, but insert them as they are when the soil is friable. The first week in April will be soon enough. We should not employ nitrate of soda at planting time. You may mix a little superphosphate and kainit and sprinkle about a handful in each 7 or 8 yards of drill if you like, and a dusting of nitrate of soda may be given when the plants are ready for hoeing.

Pruning Dwarf Fruit Trees (*A. G.*).—The trees should have as little pruning as possible for profitable production, acting on the following principles:—(1) Allow each variety to assume its natural form; (2) confine pruning to thinning out the shoots in late June or early July where they cross, crowd, or otherwise interfere with each other, or impede the free access of light, air, and rain to the fruit and foliage, and in September shorten any shoots that have grown too long to half their length, and those not required for extension to four or six good sized leaves. This is with the object of ripening the wood and developing the fruit buds. The above comprises the summer pruning, and the winter pruning merely consists in shortening shoots not required for extension to three or four buds, and thinning where necessary, so as to leave the primary branches 9 to 12 inches apart; the result is a full crop of fruit by the third year, and the object then must be to prevent overcropping by judicious thinning of the fruit, keeping the trees under

rather than overcropped, as some growth is necessary each year—not only for the needful enlargement of the trees, but for keeping them in constant bearing year after year. When the trees attain a good size and are judiciously cropped they will need very little pruning, it being more a question of thinning than shortening the growths.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*Subscriber, Ugbrooke*).—1, *Abies lasiocarpa*; 2, *A. alba*; 3, *A. alba* var.; 4, *A. Nordmanniana*; 5, *A. Smithiana*; 6, Probably *A. Menziesi*.

COVENT GARDEN MARKET.—MARCH 2ND.

No alteration. Business quiet again. Large supplies of Canary Island produce to hand at lower rates.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, 1-sieve	1	0	4	0	Grapes, per lb.	1	6	3	0
Apples, Canada and Nova					Lemons, ease	15	0	2	0
Seotia, per barrel	12	0	25	0	Oranges, per 100	4	0	9	0
Cobs, Kent, per 100 lbs. ..	0	0	40	0	St. Michael Pines, each ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	9	1	6	Mustard and Cress, punnet	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	6	0	10	0	Scorzoneria, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinaach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Oreoid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	3	0	6	0	Maidenhair Fern, dozen	6	0	12	0
Azalea, dozen sprays	0	6	0	9	bunches				
Bouvardias, bunch	0	6	1	0	Mimosa or Acacia (French)				
Caruations, 12 blooms ..	2	0	3	0	per bunch	1	6	2	0
Christmas Roses, dozen					Nareiss (French) dozen				
blossoms	1	0	1	6	bunches	2	0	4	0
Cineraria, dozen bunches..	9	0	12	0	Nareiss (various), Seilly				
Cyclamen, dozen blossoms ..	0	3	0	6	dozen bunches	2	0	4	0
Daffodils (double), dozen					Pelargoniums, 12 bunches	9	0	15	0
bunches	3	0	6	0	„ scarlet, 12 bunches	6	0	9	0
Daffodils (single), dozen					Poinsettia, dozen blossoms..	3	0	6	0
bunches	4	0	9	0	Primula (double) 12 sprays	0	6	0	9
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0
Enphorbia jaequiniaeflora					„ Red, per doz. blossoms..	4	0	9	0
dozen sprays	2	0	3	0	„ Tea, white, dozen ..	1	0	3	0
Epiphyllum, dozen blossoms	0	6	0	9	„ Yellow, dozen	2	6	3	0
Freesia, dozen bunches ..	4	0	6	0	Snowdrops, dozen bunches	1	6	3	0
Gardenias, per dozen ..	4	0	8	0	Tuberose, 12 blossoms..	1	0	2	0
Hyacinths, dozen spikes ..	4	0	6	0	Tulips, dozen blossoms..	0	6	1	6
Hyacinths (French) dozen					White Lilac (French) per				
bunches	1	6	3	0	bunch	5	0	6	0
Lilium longiflorum 12					Violet Parme, French behs.	2	0	3	0
blossoms	6	0	9	0	„ Czar	1	0	2	0
Lilium (var.) dozen blossoms	2	0	4	0	„ small bunches	2	0	2	6
Lily of the Valley 12 sprays	0	6	1	0	„ English, dozen				
Marguerites, 12 bunches ..	3	0	4	0	bunches	1	0	1	6
Mignonette, 12 bunches ..	1	6	3	0	Wallflowers (foreign), dozen				
					bunches	2	0	3	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitae (golden) dozen	6	0	12	0	Foliage plants, var., each ..	2	0	10	0
Azalea, per plant	2	6	3	6	Genista, per dozen	10	0	12	0
Cineraria, per dozen	8	0	12	0	Hyacinths, per dozen	6	0	9	0
Cyclamen, per dozen	9	0	13	0	Lily of the Valley, per pot	1	3	2	0
Daffodils, per dozen	9	0	15	0	Lycopodiums, per dozen ..	3	0	4	0
Dracæna terminalis, dozen	4	0	42	0	Marguerite Daisy, dozen ..	6	0	13	0
„ viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	9	0
Erica gracilis, per dozen ..	9	0	12	0	Palms, in var., each	1	0	21	0
„ hyemalis, dozen	12	0	18	0	„ (specimens)	10	6	63	0
Enonymus, var., dozen ..	6	0	18	0	Pelargoniums, scarlet, doz.	4	0	6	0
Evergreenus, in var., dozen	6	0	24	0	Solanum, per dozen	9	0	12	0
Ferns, in variety, dozen ..	4	0	18	0	Tulips, dozen pots	6	0	8	0
Fiens elastica, each	1	6	7	0					



SEED AND MANURE.

SEED time has come again, delayed somewhat by weather it is true, but it is here, and we cannot suffer it to pass by without once more asking our readers if they have made preparation to turn

it fully to account. In doing this we may remind them that in farming, like all other work upon the land, there must be proportion and thoroughness. In autumn every effort was made to get the land clean and to throw it up in ridges to the beneficent influence of frost, snow, wind, rain, and sunshine. It has since been frozen repeatedly; we know, therefore, that under a brief spell of March winds and bright weather it will break down under the harrows into as deep and fine a tilth as heart could wish. Now let us impart the crown and finish to our work by the use of good seed and genuine manure; both are indispensable, better not till the land at all than for either to be wanting when we sow it.

That shrewd Norfolk farmer Mr. Clare Sewell Read says in the recent issue of Messrs. Sutton's "Farmers' Year Book," "Let the value of the earth's produce only return a fair reward to the husbandman and he will soon double the produce." But we say, Let us meet low prices by doubling the produce now; let us also see that such produce is equally high in quality, then shall we combat hard times in the right way. Let us, too, continue to reduce the area of land under the plough, bringing it well within the compass of our means. Let no stupid clinging to an obsolete routine of practice stand in the way, but let us adopt the best means to bring our crops to the highest possible degree of excellence. That the man who clings to the muck cart and uses tail seed corn cannot do this is certain. Compare the facility, economy, and certainty of manure application with the seed through the drill, with the cumbersome, costly, and doubtful process of carting, spreading, and ploughing-in farmyard manure. Not only does the intelligent use of pure chemical manures lighten labour, but it gives entire liberty from the routine of a four-course or any other shift. By a judicious blending of nitrogenous and mineral manures into a complete and safe entire manure—*i.e.*, containing the essential elements of plant food in due proportion—we can always insure soil fertility.

Good seed is a comprehensive term, by which is implied a fine, bold, well-screened sample, quite free from weed seed, and from mixture with any other sorts. A vigorous plant cannot be had from inferior seed. The want of nutriment, starch, and sugar in the seed lobes induces a delicate seedling, a weakly plant, an inferior crop in both quantity and quality. No, if we would have a plant full of life and vigour the seed must be large, plump, and well ripened, the soil must be rich in fertility, and the sowing be timely.

The high price obtained by seedsmen for pure seed corn has led to a considerable extension of the growth of pure samples, for which something more than market price is charged. This is to the advantage of an ordinary farmer, who, while avoiding the payment of an exorbitant price, may obtain what he requires at reasonable rates from local markets. Though Wheat sowing was interrupted by the severe weather in February, it is quite probable that very much spring Wheat will be sown, for the fact of the annual imperial average price of Wheat having risen last year 5s. 1d. per quarter above that of 1890 will assuredly act as an incentive to spring sowing. There is no denying the fact that Wheat is king among corn, and that its culture under the best conditions is still profitable. The price rose to £2 1s. 8d. per quarter on September the 5th; it had not touched £2 for nearly ten years. It was thought that the big crop in Manitoba would have told seriously upon our home markets, but the Central Pacific Railway appears quite unable to transport it to the seaboard, inland navigation is closed till May, so that producers there are cut off from their only market, Great Britain. In sowing spring Wheat we strongly advise using the full quantity of chemical manures enumerated a few weeks ago.

That highly manured Barley means a heavy crop liable to be beaten down by the first thunder shower after full growth, is often true enough, and much caution and thought is required in deciding

how much manure should be used. Often have we used the full quantity successfully, especially upon light land; we have sown very much with equal success after sheep folds upon Swedes, a somewhat common practice in East Anglia, and judging from experience there is far more risk of Barley being sown in poor land without manure than of its having too much. We have had nothing to equal the famous Kinver Chevalier in any way, and certainly regard it as indispensable where there is a probability of producing good malting Barley. In our opinion it has no mean rival among spring corn in Black Tartarian Oats. Certainly this is a safer crop, which if only good seed and good manure are sown together yields a sure profit. Messrs. Webb claim for their selection of this fine Oat a yield of 121 bushels per acre, or 15 quarters 1 bushel. From such a crop there ought to be enough head corn to afford a return per acre superior to that of either Wheat or Barley.

WORK ON THE HOME FARM.

Spring corn must now be sown as soon as the soil is sufficiently dry to work freely. No favourable opportunity of doing this should be lost. Spring weather is proverbially fickle, if we miss our chance of sowing in the first fine weather we may have to wait for weeks, just as happened last year. Corn that is sown late in spring is often only a light crop; upon emergency for exceptionally late sowing Oats are altogether preferable. An extra field or two of Oats are always useful upon a farm. Never forget the sound principle that a farm should, so far as is possible, be self-supporting, should produce food for man and beast. He is the best manager who avoids having to pay heavy accounts for cake and corn. We may be told that cattle do not pay to fatten now. Our answer is that well-bred cattle do answer, and always have answered to fatten provided that is done in the right way. It is notorious that at the present time the country is full of inferior cattle, upon the feeding and fattening of which farmers continue to waste their means. Such cattle do not come to early maturity, they grow slowly, fatten slowly, the capital invested in them is so long "dead" that when the beasts are sold there is no profit. Farmers do this, not in a few cases, but generally; yet we are told what an intelligent body of men they are, that it is mere waste of money attempting to enlighten them; it is if efforts to help them continue to be met as they now are.

Keep cows and store cattle off the land, and do not turn them out till there is a full bite, which may not be till May, or which may be in the present month, as it is occasionally. Have ewes and lambs under close supervision; in no case allow them to go to outlying pasture yet. Cold and wet always do much harm among lambs, and they must have shelter if we would have them thrive well. In the Midlands lambing does not begin till the present month, yet many lambs are frequently lost from exposure. No lambing fold is made; the lambs take their chance out on the open pasture. If the weather is mild all goes well; if not, many lambs die. They are skinned and given to the pigs to be eaten, the whole thing being taken quite as a matter of course, no effort of any sort being made to prevent it. Custom rules. As the father did, so does the son. How can we enlighten him?

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

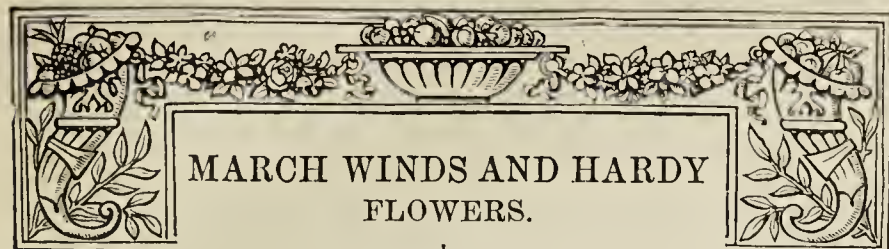
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1892. February.		Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wct.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 21	29.440	42.2	40.8	S.E.	36.0	45.8	31.2	5.2	3.6	0.039
Monday	.. 22	29.550	41.6	40.8	N.E.	36.9	50.2	37.8	75.9	35.0	—
Tuesday	.. 23	29.692	38.8	37.9	N.E.	37.3	48.7	33.3	66.4	28.2	0.133
Wednesday	24	29.805	41.3	40.9	N.E.	38.0	48.0	38.0	62.8	30.9	0.116
Thursday	.. 25	29.929	38.9	38.9	E.	38.6	51.7	37.3	68.1	30.4	—
Friday	.. 26	30.076	37.3	37.3	E.	38.9	40.8	34.9	47.1	28.8	—
Saturday	.. 27	30.137	35.0	34.8	N.E.	38.9	41.3	34.8	54.2	35.8	—
		29.804	39.3	38.8		37.8	46.6	35.3	60.7	31.4	0.288

REMARKS.

- 21st.—Overcast throughout; shower at 3 P.M., and a little rain at night.
 22nd.—Fog early; sun shining through haze at 10 A.M., and generally afterwards.
 23rd.—Sunshine almost throughout, but rather hazy.
 24th.—Wet from 5 A.M. to 11 A.M., then foggy and drizzly till noon; overcast afternoon.
 25th.—Foggy till about 11 A.M.; sunshine from noon to sunset.
 26th.—Dull, misty, and damp throughout.
 27th.—Misty morning; overcast afternoon.

A nearly average week, for the date, in all respects.—G. J. SYMONS.



MARCH WINDS AND HARDY FLOWERS.

WHILE they are still in the future or are past and gone we can think and speak of the "blustering winds of March" with comparative indifference, but it is otherwise when we feel their fell power. In days such as we have had of late, when all Nature seemed shivering and shrinking, it takes all our patriotism to enable us to feel with Alfred Austin when he speaks in his "sonnet, written in mid-channel," of the return from other climes, knowing that what would greet him would be

"No scent of Orange groves, no zephyrs bland,
But amazonian March, with breast half bare,
And sleety arrows whistling through the air."

And still could say :—

"Yet he who boasts his birthplace yonder lies,
Blesses the brave bleak land where he was born."

But even these days have their silver lining, and we know that they are performing a useful if unwelcome task in retarding the early buds and blossoms which were hastening on too rapidly. Stormy and bitter as has been the weather, it is wonderful how little the early flowers have suffered. The Snowdrops are still with us, and little wonder is it that some attention is being directed to their improvement even if this is to end in the multiplication of varieties and the eventual appointment of a "Snowdrop Committee." Several amateurs in this country have devoted considerable attention to these flowers, and I have on my table as I write some blooms very kindly sent me in accordance with a request by Mr. Wm. Thomson of Auchinraith, High Blantyre. These are the result of a cross between *Galanthus nivalis* and *G. plicatus*, the former being the pollen parent. The flowers have been somewhat damaged in transit, but they are without doubt distinct from either of the parents. They vary somewhat, and as they are as yet unnamed a detailed description cannot very well be applied to them. What Mr. Thomson has sent me as No. 1 is a very large flower with a very strong stem, and from the green at the base of the tube and its markings presents a strong resemblance to one of the best varieties of *G. Elwesi*, having a graceful habit and being of better form than most of the *Elwesi* varieties. One very conspicuous feature of the whole of the flowers is the vividness of the green on the outside of the tube. This is much lighter and brighter than in the common *G. nivalis*, and the streaks in the inside are also much deeper in colour, while the pollen is of a deeper orange. The form of all the flowers is excellent, and Mr. Thomson informs me that he has a beautifully crenated flower which has been a failure this season. I cannot speak of the foliage or height of the flowers, but the raiser states that the foliage is sometimes very long and the stalks of considerable height. It may save some trouble to state that these Snowdrops are not in the market. It is to be hoped that those who take an interest in this chaste and beautiful flower will persevere in their work of raising new and improved varieties, a work which, as all who have raised bulbs from seed know, requires very considerable patience.

There is now in bloom in the garden a flower which, although later to bloom, will in time become a formidable rival to the favourite Snowdrop; this is the *Leucoion*, or white bulbous Violet, barbarously (if I may be allowed to say so) corrupted to

Leucojum. The varieties of *Leucoion æstivum*, the Summer Snowflake, are better known, but much inferior to the varieties of *L. vernalis*, which is one of the most admired of my garden flowers. Hardly anyone who sees it can fail to be delighted with its large and beautiful bell-shaped pure white flowers, tipped with green, drooping from stout, deep green stems, and enhanced by broad, deep green leaves. The flower-stems are from 4 to 6 inches in height, and the plant prefers a somewhat shady and moist but well-drained soil. The typical *L. vernalis* was introduced in 1596 from Germany and Switzerland, but has for years been neglected by the general flower grower. It says little for the taste for hardy flowers that this most beautiful bulb should have been in this country for well nigh 300 years and still be so rare in gardens. It was known to Parkinson, but the taste for novelty has relegated it to comparative obscurity. A variety of *L. vernalis* known as *carpathicum* is frequently offered in catalogues, but, as some of us know too well, is not easily obtained; but this is excusable, as there seems some difference of opinion as to what is the true *carpathicum*. It seems, however, to be the one so beautifully figured in "Wooster's Alpine Plants," plate xxxii., as *L. vernalis*. I understand it is also in the "Botanical Magazine" (table 1993) under the correct name. Mr. J. G. Baker, whose authority we may accept as conclusive, states that *Erinosma* (*Leucoion*) *carpathicum* "is a form with the perianth segments tipped with yellow instead of green." I have been on the look out for this plant for some years, and last year a generous friend, to whom I have been indebted for many good things, gave me a few bulbs of this variety, which is at present in full flower, and is to my mind much finer than the type. There seem to be some stocks of *L. vernalis* of shy flowering habit, as some that I have had for some years never flower, while others flower regularly. The *Leucoion* was dedicated to St. Agnes.

Now, too, are the gardens aglow with Crocuses, worthily and appropriately entitled by our old herbalists, "Herbs of the Sun," for true children are they of its cheering rays. I have before this spoken of *Crocus biflorus*, popularly known as the Scotch Crocus, but why so called I have never been able to ascertain, although the most ultra-national of my countrymen need not feel aggrieved at this beautiful species receiving the name of the land of Scott and of Burns. It is a native of the Crimea, whence it was introduced in 1629, but is rarely offered in the catalogues of the general bulb dealer. Its earliness and beauty endear it to the grower, and I think nothing can be finer than the appearance of a clump in my garden having, when the sun shines, about a hundred fully expanded flowers. These are white, with a yellow zone at the base and orange anthers. The grassy foliage showing among the flowers adds to their beauty, and the pencilling of deep purple or black on the outside makes them very beautiful when closed. Then a large clump of *C. Imperati* is still most beautiful. Last autumn I added to my stock of this exquisite early species, and I am delighted with a mass in full bloom. The bright purple flowers are larger than my former stock of the same species, and vary in depth of colour; like *C. biflorus* the grass-like leaves are intermingled with the flowers. It, too, is a special favourite with the bees, both being swarming with the little insects on fine days. How little the yellow Crocus seems to attract them! But while the bees neglect the common yellow Crocus, we, who gather not honey from the flowers, cannot refrain from admiring it. What the ancient alchemists failed to produce from the baser metals, Nature seems to have succeeded with. From the black or brown earth she has produced these masses of unalloyed gold shining and gleaming in the sunlight. The Crocus never fails to cheer us with its bright hues. But one is almost afraid to linger longer over the various bulbous plants in flower lest we should, with perhaps good reason, be accused of favouritism and of preference for these flowers. There are, however, no plants of early spring

which can vie with them, and even at the risk of sameness, if such a term can be used, I cannot but speak of the exquisite *Iris reticulata* now coming into, or in flower. Very few are, as yet, in bloom, but some plants raised from seed a few years ago, and which flowered for the first time last year, have been flowering for some time. They seem to be identical with the variety known as *I. reticulata purpurea*, which has smaller flowers than the ordinary *reticulata*, deep purple in colour, with falls of yellow, white, and deep brown. Varieties of this charming *Iris* are now rapidly increasing in number, and as yet I think none surpass in beauty the deep blue.

A note on the early Saxifrage may redeem this article from the character of being one on bulbs alone. Very beautiful are the few of these I have now in flower. What I purchased some year or so ago as *S. Boydi* has proved to be the white variety, and although I am somewhat disappointed it is so beautiful that the disappointment is reduced to a minimum. The true yellow *S. Boydi* is a hybrid between *S. Burseriana* and *S. aretiodes*, and the white variety closely resembles in its flowers the very beautiful *S. Burseriana major*, now in flower with me also. The foliage is, however, much brighter green, and the plant seems a better grower than the latter. *S. Burseriana* is also in flower, while the beautiful *S. luteo-purpurea*, which is late with me, has its pretty yellow flowers only half open.

In every nook Primroses and Primrose-Polyanthuses are beginning to shine; *Cyclamen Coum* is still in full flower; *Bulbocodium vernum* is still, with one or two *Scillas* and *Narcissus minimus*, in bloom; and soon *N. pallidus præcox*, with its sister *Daffodils*, will be nodding to the wind—"taking the winds of March with beauty," and making, with other flowers, a little Eden of my little garden.—S. ARNOTT.

QUICK WORK IN GRAPE GROWING.

IN reference to the note which appeared on page 147 under the above heading, together with a good illustration of Mr. Colebrook's heavy crop of Grapes borne by Vines two years after planting, I should like to ask whether the Vines which were planted in February, 1889, and fruited in 1891, were cut-backs or struck from eyes the same year they were planted. In the meantime, I may mention an instance of quick work in Vine-growing which beats Mr. Colebrook's excellent record, and illustrates what may be done with the Grape Vine when it is given good and generous treatment. In 1881 the principal range of vineries here, consisting of four houses, was planted with all the leading varieties (about fourteen in all), struck from eyes the same year and fruited the following year, when Mr. J. Wright of the *Journal of Horticulture* saw the crop, concerning which I need only say that a Vine of *Gros Guillaume* bore three bunches which in the aggregate weighed 30 lbs., and which were of sufficient shape, size, and finish of berry to induce that gentleman to recommend me to send them up to the Fruit Committee, at that time held in South Kensington, but which valued advice pressure of work at the time prevented my following. I may add that other varieties of the Grape Vine did equally well according to their respective characteristics, and have borne heavy crops every year since.—H. W. WARD, *Longford Castle, Salisbury*.

THE engraving on page 147 was taken from a photograph of one of our vineries, planted 1889, the photograph being taken in August, 1891, and it is with pleasure we comply with your request to furnish some details of our practice in raising and growing the Vines.

We are told that the Vine is a native of Persia, that Vines are there to be found 400 years old in a flourishing condition, and that the natives consider Vines young at 100 years old. At the time we planted our Vines we did not trouble about them being considered young in 100 years' time, but our main object was quick returns.

We wish to impress upon your readers that growing Grapes for profit and for pleasure are two distinct things—one means good fruit at any price, the other the most good fruit at the least cost. For obtaining quick returns we commenced in the following manner. In January eyes were selected from well-ripened wood cut across about half an inch on each side of the bud and sliced longitudinally opposite the eye, making the cut as clean as possible. They were placed in 3-inch pots in a mixture of decayed manure,

light turfy loam, and a little sand, then placed in the vinery, which was ready for forcing. There they remained until about the second week in February, and were removed into a propagating house having a temperature of 65° to 70° for about two or three weeks, then plunged in a bottom heat of 85° to 90° until they were fairly in growth. In no case do we allow our young Vines to have bottom heat after they are growing freely, as we find it injurious to the roots; if kept in bottom heat too long they make thick sappy roots, which often die at the resting period. After the pots are moderately filled with roots the Vines are shifted into 5-inch pots in a mixture of loam, charcoal, and bone dust, and grown in a temperature of 65° to 80°. These pots are well filled with roots about the second or third week in May, and then they are transferred into 10-inch pots and kept in the same house until the end of August. After that they are placed outside, secured to a south wall, and left there until October. In the growing season they are well attended to in watering and syringing.

We keep them at rest from October to January or February, as the case may be. In the vinery figured in your issue of February 25th the Vines were planted 10th February, 1889, and were at the time just starting into growth. The border had been completed about a month previously. The house, as was shown, is a span-roof, and the Vines are planted on one side only. The rods were trained up one side and down the other, and the crop was very even, but rather the better on the side down which the Vines are trained. Previous to starting, the young Vines were cut down to 8 feet.

The border is an inside one. The first year it was made 2½ feet wide and 2 feet high, 1 foot of which was drainage, so that the soil was 1 foot deep by 2½ feet wide. The Vines were planted 3½ feet apart, and one rod from each trained up one roof and down the other. The drainage was covered with fresh stable manure and oyster shells, and the soil was then added. This had been prepared six months. It was obtained in preparing foundations for some buildings on a site which had been a kitchen garden for over ten years. To two loads of soil we added one load of fish heads, &c.—that is to say, about 3 tons of soil to 1 ton of fish, with a liberal supply of oyster shells. The Vine roots are wonderfully fond of these shells, and in many cases twine around them with great tenacity.

On the 1st of March the Vines received a good watering for the first time after planting. In a week or two they were showing bunches freely, and we could not find it in our hearts to cut all of them off, so we left six bunches on one Vine and three on the other. The Grapes finished in a very fair condition, taking into consideration that the Vines were allowed to grow at their pleasure; indeed, the first year after planting all the shoots were allowed to remain and were carefully trained up the trellis, until the whole house was one mass of fine foliage for the strengthening of both roots and branches. We must have fine foliage. In the meantime the border was kept well supplied with tepid water. We never use cold water. The borders were top-dressed with fish soil, and in a short time were like a doormat with roots. We spread about 3 inches of soil all over the border, and applied tepid water copiously. During the second week in August all the side shoots were cut back to about 2 feet. This was the first time they had been pruned, and it seemed to check them, but we were looking after our back buds for producing the crop shown in the engraving. In January last year the border was made as large again, in the same way as before, and the roots soon took possession of the new soil. In due time the Vines exceeded our expectations. A finer lot of bunches we have never seen. In the thinning process we took off 174 bunches, and left 400 to satisfy us for our labour and expense of two years and a half. The three largest bunches weighed respectively 7 lbs. 4 ozs., 6¾ lbs., and 5 lbs. 6 ozs.

Our friends told us we should have no Grapes this year, but I am pleased to say the Vines look as well as they did last year; indeed, I think better, and they are showing plenty of fruit. We planted a house of *Gros Colman* with thirty-four Vines on the 1st February last year, and they are in the most promising condition. We are also preparing a house for *Muscat of Alexandria*, keeping to the following points:—Not making the border too large, giving plenty of drainage, fresh soil to be added as the roots require it, plenty of tepid water, feed well with liquid manures, give them plenty of heat the first three months, do not prune them until late in the season, and we shall no doubt have as good success in the future as we have had in the past. We shall be glad to give any further information that may be desired.—CHARLES COLEBROOK & SON, *Great Grimsby*.

MR. STANLEY EDWARDS, Hon. Secretary of the Farningham Rose and Horticultural Society, writes to say that the annual Show will be held on the 30th of June this year.

LILY CULTURE.

SINCE the advent of *Lilium auratum* there has been quite a demand for Lilies, and many new species and distinct varieties have been introduced from Japan, California, and the Philippine Islands. All of them may be cultivated in pots, and nearly the whole of them in the open ground in England. When the bulbs are planted out of doors they should be in a position where the plants will not be exposed to the fury of south-west gales. Not only the flowers, but the leaves also are much injured by wind.

The culture in pots is very simple, and may be briefly described. When the flower stalks become yellow it is a sign that they may be cut down near the surface of the ground, and as soon as convenient after this the roots may be repotted. There is some difference of opinion amongst Lily growers as to the best way this is to be done. Some hold that it is injurious to the bulbs to shake them out of the soil and separate them, and would repot year after year, increasing annually the size of the pots. If the roots are potted before they start into growth I believe it is the best practice to shake out all the old soil, and saving as many as possible of the fibrous roots at the base of the bulb. There will also be a larger proportion of fibrous roots at the base of the old stalks, and these will have grown all round the bulb. The best way is to twist this stalk with all the roots out from the bulb.

I have tried to grow them in various composts, and they do well in loam, leaf mould, and decayed manure. They do equally well in a compost of turfy loam and turfy peat in equal proportions, the leaf mould to be omitted, but adding the same proportion of manure and sand; one-fifth part of the compost ought to be well decayed manure. I have always found that the roots are in better health when peat has been used in the compost. Good peat cannot be obtained in all districts, but when it can I advise its use; but it is as well to state that very fine Lilies can be grown without peat in the soil.

I believe in carefully draining all pots intended to grow plants during a whole season. The crocks should be placed in carefully, one large piece over the hole, a few similar bits of crock should be placed over it, and some smaller drainage over all; the finer portion of the compost must be prevented from mixing with this by placing fibrous turf over the crocks. In potting press the mould in firmly by the hand, but not hard. The pots used may be of various sizes, one bulb in the centre of a 5 or 6-inch pot, or a dozen or a score of roots may be potted in a 13 or 15-inch. I have also potted three or four roots in a 9-inch pot; the top of the bulb should be an inch or more below the surface. After potting plunge the pots out of doors in some light material—I found cocoanut fibre refuse very useful for this purpose; the surface of the pots should be at least 6 inches covered. Early in February they must be taken out of the plunging material and be put into a cold frame. By this time plenty of new roots will have formed, and some of the earlier sorts be throwing up the flower stems. Abundant ventilation is necessary, and in fine weather the lights may be removed. When all danger of frost is over the plants may be removed to a sheltered position out of doors, or they may be kept through the season under glass; if the latter the plants should be close to the glass, the house to be well ventilated, and the ventilators open night as well as day. I have had *L. auratum* and *L. Humboldti* run up to 8 or 10 feet under such circumstances, and be well furnished with leaves from the base. The flower stems require to be supported by sticks, and when in flower they must be shaded from the sun.

As to sorts, *L. auratum* must stand at the top of the list. Amongst the importations from Japan are many inferior varieties, but the best selections are truly noble flowers. *L. Krameri* and *L. Krameri album* are very much like *auratum* in style of growth and formation of flower; the petals of the former are suffused with pink. *L. Leichtlini* is a very beautiful flower of slender growth; the petals gracefully recurve. They are clear yellow, spotted with brownish purple. There is also a major form which is scarce.

L. speciosum, of which there are at least six distinct and very beautiful varieties, is, perhaps, the most useful of all for pot

culture. *L. Humboldti* is a very showy species, the flowers are orange yellow densely spotted with brown; the petals are recurved, and the whole flower resembles *L. tigrinum splendens*. *L. californicum* and *L. pardalinum* are nearly allied species. *L. longiflorum* with its elegant trumpet-shaped, clear white flowers, should be in the most select collection. *L. Washingtonianum* is a handsome species, but it is not such a fine flower in cultivation as it was expected to be from the glowing accounts received with it. *L. umbellatum* and its varieties *L. Thunbergianum* and numerous forms thereof are all worthy of culture. *L. giganteum* is a grand species and likes a shady sheltered position in which to develop its magnificent spike of flowers. *L. tigrinum splendens* is the best of the Tiger Lilies. *L. tigrinum fl.-pl.* is also a very fine variety. *L. tenuifolium* is a gem, the stem is a foot high furnished with narrow leaves, and the flowers are orange scarlet, the petals elegantly recurved. *L. parvum* is also a small dwarf species worthy of culture.—J.

ARALIA SIEBOLDI.

It would not be easy to imagine a more effective plant for a pedestal, or indeed any other prominent position in which its bold and



FIG. 26.—ARALIA SIEBOLDI.

ornamental leafage could be well displayed, than *Aralia Sieboldi*. It is essentially a plant that requires space. Crowded up in a greenhouse amongst a host of other plants its well-marked individuality is obscured, and it is impossible to describe it as other than mis-applied and out of place when cultivated under such conditions. Many plants are often marred by their surroundings, and the remark forcibly applies to this. It is not suggested that it is always out of character when grown under glass. Examples to the contrary are often seen. If allowed plenty of room, not only for development, but also for its habit and foliage being well displayed, it is a greenhouse and conservatory plant of much value.

There are other uses to which it may be put. The plant represented in fig. 26 was grown in a large bowl that had been bored for drainage, and was a beautiful and admired occupant of a room window.

Even more ornamental than the type in the estimation of many persons are the gold and silver variegated forms, *A. S. aurea variegata* and *A. S. argentea variegata*. These are remarkable for the beauty of their foliage, and it is desirable that they should be more extensively grown than they are at present. To all the uses that have been suggested for *A. Sieboldi* they are equally adapted, and the distinctness of the tints imparts a special interest and attractiveness to them. They are best grown in a compost of loam and sand in preference to very rich material, which would be likely to encourage too luxuriant growth.—P.

POTTING PLANTS.

HAVING already dealt with the potting of plants which have had the top growths shortened, and, consequently, required a reduction of roots, I have now to treat of those which are shifted from the young seedling or the cuttings as they develop in growth. The hackneyed advice to shift into larger pots before the roots are matted around the sides of the pot is excellent, but requires some explanation, as also does another form of giving the same information, which usually runs, "Pot as soon as the roots have reached the sides of the pot." There may be exceptional cases in which beneficial results follow in consequence of having allowed certain plants to become thoroughly pot-bound before a shift is given, but as a general practice it is a thoroughly bad one. On the other hand, I think it is quite possible to err in the opposite direction, and place plants into larger pots before roots are sufficiently plentiful or active enough for that operation to be performed with the best results. I have sometimes potted plants as soon as the roots had reached the sides of the pot, and found they made less satisfactory progress than others kept for a longer time before being shifted. This, I think, is easily accounted for when the facts are noted closely.

It is not unusual to find when plants are turned out of their pots that only a very few roots have found their way to the outside of the soil. I prefer in such cases to let these advanced feeders suffer a slight check till the bulk of young roots are visible. In doing this I contend we are working on scientific principles, quite as much as when we pinch very strong shoots on plants or fruit trees, and that the root action is thereby equalised as much as top growth is by pinching. I fancy this matter requires a little more consideration than it receives. *Calceolarias* and *Cinerarias* are, perhaps, the most impatient of becoming root-bound in the early stages of growth, of all cultivated plants, and the roots should never be allowed to coil round the pot to any great extent before the plants receive their final potting; but although they require extra attention in this respect, it is yet necessary in their case, especially during the winter and early spring months, to see that root action is general before placing in larger pots, or, with the slightest mistake made in watering, the soil quickly becomes sour, and this is more injurious to the plants than delaying their potting. Close observation is the only safe guide as to the exact time the repotting should be done, and instead of shifting whole batches of plants irrespective of their condition, a sorting out should take place, shifting into larger pots only those that are in the right condition, while the weaker ones should have the surface of the soil stirred, be arranged together, and operated upon at a later period.

Pelargoniums of all types when placed in their flowering pots should have the soil rammed very firmly, in order to secure that firm short-jointed growth which is the precursor of abundance of flowers. It is by no means desirable to see them start rapidly into growth after being potted. What is wanted is a steady and continuous growth, in which the woody tissues are gradually built up as extension takes place. *Chrysanthemums*, *Solanums*, *Roses*, *Marguerites*, and *Genistas* are also among those that require very firm potting, while the compost for *Fuchsias*, *Begonias*, *Gloxinias*, and such Ferns as *Lomaria gibba* and *Davallia Mooreana* should not be pressed so firmly. All kinds of *Heaths*, *Epacris*, *Ericas*, *Dracophyllums*, *Diosmas*, *Azaleas*, and *Rhododendrons* should at all times receive only small shifts. As the work of potting proceeds, each layer of soil added should not be more than from 1 to 2 inches in thickness before being thoroughly rammed, and as each successive layer of soil is pressed down care must be taken that the rammer forces it on to the soil below.

In dealing with all classes of plants other than bulbous ones it is important not to bury the stems to a greater extent than is necessary to add a slight coating of soil to freshen the surface. This is especially the case with the hardwooded plants above named; with them deep potting is generally a fatal proceeding. Many cultivators recommend that the centre of the plant should be slightly raised. This I consider is not a good practice, because the centre of the ball is more liable to become dry, while the fresh soil is in the opposite extreme in regard to moisture: when potting, therefore, I prefer to have the centre of the ball slightly below the soil around the edges of the pot.

The best time for giving plants their annual repotting is, as a rule, when growth commences; the sap is then becoming active, and fresh roots are quickly formed. It is, however, not always possible to have all plants potted just at this stage, and if left till growth is much advanced, unless special precautions are taken to shade and keep them close for a time, the operation had better be deferred till the young growth is completed. Pots two sizes larger than those the plants are growing in is usually about the right shift to give, but this may sometimes be modified when transferring

to the flowering pots. It is then often necessary to use pots three sizes larger. In the case of *Heaths* and *Ericas* pots only one size larger often suffice.

In doing the work dexterity and smartness should at all times be aimed at, especially by young men. An operator who performs the work in a dilatory or slovenly manner, without giving the subject the thought necessary, is a constant source of annoyance. On the other hand, there is such a thing as getting into a groove of pondering on the work going on, and making but little progress in its execution. Those who set about work in such ways are not valued in the present stirring times, nor do they meet with much success in the battle of life, where they have to compete with those who carry out their work with thoughtful intelligence and commendable despatch.—H. DUNKIN.

I WAS somewhat disappointed with Mr. Dunkin's remarks on the above subject on page 139, and should like to ask your correspondent, when he resumes his subject, to give us a little clearer and better information on the subject. Why not begin with plants that are now ready for attention, such as *Palms*? but on no account advise loose potting, as I have never known a *Palm* do well in loose soil; besides, the extra attention required in watering would be very great. I advise at all times to pot *Palms* firmly, and use the best fibrous loam procurable, with a sprinkling of Thomson's or Clay's manures in the soil, and thus secure a rapid yet compact growth, that is so desirable in the culture of *Palms*. Then follow with fine-foliage stove plants, *Alocasias*, and all that require a compost of rough peat, charcoal, bones, broken crocks, moss, &c. Here we youngsters may take the hint, and pot rather loosely. But not so with *Crotons*, which need good loam, very little peat, plenty of sand, and the use of the potting stick freely, not the "rammer;" the latter we use for posts when putting up gates and fences.

Now for *Ferns*, and what they should be potted in. There are several varieties, which need quite different soils for growing successfully. I am of opinion that anyone writing on the subject of potting plants should say in what composts the different varieties should be placed, as well as explain the way in which the work should be done; also state at what season of the year. Such precise information would be found interesting and instructive to beginners.—T. W.

THOUGHTS ABOUT TOMATOES.

RICH harvests of magnificent fruit have rewarded cultivators of *Tomatoes* in the open air in many seasons, but the succession of years in which the crops have been either inferior or worthless is now becoming a long one. "As in 1887" must be the hope of many a disappointed grower for the season that is opening. What will it bring forth? The mellow heat of a generous summer sun, broken only by genial and life-giving showers, or the "tearful festival" of a sky from which the smile is banished? Time will show. Whether the general tenor of *Tomato* topics be of the same mournful tinge as during the past two seasons, or spring back joyously to the buoyant tone of 1887, must be left to the future to decide. But while bowing to the inevitable acknowledgment that on the character of the season must success or failure largely hinge, we can at least determine that no efforts shall be spared to take the tide at the flood should it set in our favour, or to make the utmost possible headway if the stream be adverse.

The powerful impetus that was given to *Tomato* growing by its widespread adoption both as a cooking and dessert fruit a few years ago shows no sign of degeneration; on the contrary, it continues with unabated force. And great as the demand is, it is likely to increase fully in proportion to the supply for many years to come. The uses of the fruit-vegetable are so manifold that if the home supply increased a hundredfold, and were attended by a corresponding diminution in price, it would be readily taken up and utilised. It is impossible to estimate the capacities that exist for the consumption of superior produce. The extent of the importations gives some idea of it; but if poor-looking, ill-favoured fruit finds, as it does, an almost inexhaustible market, larger by far would be the want for British *Tomatoes* of handsome appearance and rich flavour. Home growers need to put forth earnest endeavour to excel American, Canadian, and Tasmanian Apples; but with *Tomatoes* the field is more easily to be won. It is satisfactory to observe that they realise in what their advantage lies, and are careful to make the most of it.

The uncertainty of the seasons presents a source of embarrassment to *Tomato* growers that is experienced in hardly any other market commodity, not in the chance character of the outdoor crop considered in itself alone, but with respect to its bearings on the indoor supply. There is in the ordinary course of events a satisfactory return on capital invested on *Tomatoes* under glass, but should the outdoor crop be abundant prices naturally fall, and it is only the superior returns from the early and late produce that

enable the profit and loss account to be calculated without misgivings. That Tomatoes grown under glass pay well in May, June, and July, and from October onwards, is undoubted, while in favourable seasons growers of outdoor fruit can see the price fall lower than it has hitherto done with equanimity. Private cultivators have a different question to face, but nevertheless the weather is an important point with many of them. It would be a great deal to be able to relieve the congestion of glass structures by having a good supply of Tomatoes in the open air, and, hardly less important, it would be a distinct boon to amateurs who have no room under glass to feel that they might safely rely upon a crop out of doors every season. This our variable climate forbids, and we can therefore only seek to mitigate its advantages by good judgment and sound methods of culture.

It is natural that Tomato growers should find much food for interest in the battle with the Potato disease that has been waging with varying success for so many years. The two great esculents belong to the same natural order, and there is much in common between them. It is true that the one is an underground cropper and the other is not, in which point they are wide asunder; but both are tender, though not in an equal measure, they have the same food preferences, and the same susceptibility to disease. We may expect that bad years for the Potato in respect to disease will be bad years for Tomatoes also, and it has been found that crops of both are liable to suffer when one becomes infested in the immediate vicinity of the other. The Potato disease is spread by minute floating organisms termed zoöspores. These bodies have oar-like appendages, which enable them to float upon the air, and when they find a suitable resting place they become, as it were, rooted, and throw out growths which rapidly develop until the whole plant attacked becomes infested with them. It is probable that these zoöspores are largely responsible for the spread of the Tomato disease. In the tissue of the allied plant they find a medium as suitable for their development as that of the Potato. Nor is it too much to suppose that we owe the recurrence of the Tomato disease to the presence of resting spores similar to those which Mr. Worthington Smith discovered in the Potato fungus. These micro-organisms exist from year to year, and when a predisposition to disease occurs they ramify and develop.

Although the exact conditions under which the fungus finds its best opportunity are not known, general observations suffice to indicate a more or less definite solution. In dry seasons the Potato disease is absent; in wet years it is invariably a source of heavy loss. There may be some who have formed the deductions from this fact, that excess of moisture actually breeds fungi, just as many still cling to the theory of the generation of insects by putrefaction. The true explanation probably is that the absorption of an excess of watery matter leads to the formation of soft weak tissues by the plant, and as this does not offer the same resistance to the encroachments of the fungus as do more substantial substances, the ever-patient enemy at length finds itself powerful enough to make headway. A plant gorged with watery sap is deprived of its best armour—thoroughly elaborated and perfected growth. The application of anti-blight, sulphate of copper, and other remedies may be expected to be successful when they are used as preventives—that is, for checking the spread of the mycelium and the subsequent ripening of fresh spores, but they can no more be relied upon as cures of bad infestations than consumption can be remedied when the lungs are nearly gone. In each case the object must be to check the loss of tissue in the early stage of the attack, and enable the purification of the blood in the one case and of the sap in the other, to be carried on with sufficient freedom for maintaining health.

As the importance of a healthy and well-nourished plant is thus manifested, the question of food becomes even more important than when it is considered in the light of enhancing cropping qualities alone. Here again we find an analogy between the two plants mentioned. Experiments by Wagner, Voelcker, and others with the Potato have shown that phosphates and potash are all-important for insuring productiveness, and that nitrogen, although serviceable as an auxiliary, is almost valueless when used alone. Dr. Voelcker doubled the Potato crop by an application of 4 cwt. of mineral superphosphate, 3 cwt. of potash salts (kainit), and 2 cwt. of sulphate of ammonia per acre, the latter yielding nitrogen. We can now prove our arithmetic by turning to Mr. William Thomson's experiments with manure for Tomatoes, as recorded in the Journal some time ago. He employed two sets of plants; the one being grown in loam and horse droppings prepared for a Mushroom bed, hence rich in nitrates, the other in maiden loam, with the addition of phosphates and potash. The former grew more rapidly than the latter, but in size and quality of fruit were vastly inferior, while they were attacked severely by the disease, the others escaping completely. Subsequent experiments with Potatoes gave the same result, and led him to the

conclusion, perhaps somewhat too comprehensive in the face of Dr. Voelcker's testimony to the value of sulphate of ammonia in a minor quantity for Potatoes, that "no nitrogenous manures should ever be given to any of the Solanaceæ."

The importance of these experiments to Tomato growers lies in the conviction they convey that much can be done both to fortify the plants and render them more fruitful by a proper choice of food elements. It has been found, in practice, that the enrichment of soil for Tomatoes leads directly to luxuriance of growth, liability to disease, and limited productiveness. Scientific inquiry amends this discovery by showing that the chief danger lies in the addition of manures strongly charged with nitrogen. There are nitrates enough in pure sound loam, and to add more is to do harm. Instead of adding rich decayed farmyard manure, or animal droppings to the soil, supply phosphorus in the form of bone meal, or superphosphate of lime and potash in the form of wood ashes, kainit, or muriate of potash. Not much need be given at first. The best results are admittedly secured by planting in a narrow border, with a small bulk of soil. A trough or long box 6 inches wide and the same deep is ample for a start, and support can be subsequently given in the form of top-dressings and liquid manure when the roots show at the surface. In Mr. Henderson's garden at Dulwich, where splendid crops are grown, the Tomatoes are first planted in a mere layer of soil, and fresh dressings are given from time to time. The same plan is followed in other cases, and when accompanied by good treatment in other respects is invariably followed by vigorous yet sturdy growth and large clusters of fruit. Large deep borders of rich soil are a mistake. They induce exuberance of leafage predisposed to disease, and the energies expended in that direction are in a large measure wasted. The subject will be resumed.—W. P. WRIGHT.

FEEDING VINES.

PHOSPHATES and potassic elements are the manures for Vines, with a certain amount of sulphates, which signifies that lime can be given as sulphate-gypsum, also potash, which is cheaper and more substantial in that form than as a nitrate, which vanishes rapidly with every watering, and is very expensive. To aid Vines in swelling their crops phosphoric acid, potash, and nitrogen are absolutely essential, and as the Vines are able to appropriate those elements at once they should be given in a readily available form, say superphosphate of lime two parts, nitrate of potash one part, and sulphate of lime one part. The latter makes the others more lasting whilst affording sulphur. These should be mixed and applied at the rate of 4 ozs. per square yard when the Vines are bursting into leaf, when the Grapes are thinned, and again when taking the last swelling after stoning. The stimulant will assist those with ample feeders to carry grand crops to perfection. It is, however, merely adding poison to poison to apply mixtures of the character named to soils loaded with humus and the roots of the Vines as many feet from the surface as they ought to be inches. Then something of a mechanical nature, such as lifting and fresh soil—in fact gravel—in place of the humus is needed more than stimulating food.

Blood mixed with wood ashes is unequalled as a nitrogenous and potassic manure for Vines, and costs very little beyond the trouble in preparation, which is to dry the blood thoroughly with wood ashes and keep in a dry place. Sprinkle on a good handful to the square yard after each watering, washing it in lightly, or if the border is well damped daily that will suffice to bring it within reach of the surface roots, and the next watering will carry it down fast enough. Some growers sprinkle the borders daily with liquid manure, say a 3 gallon watering potful to 30 square yards, and then some moisture and ammonia passes into the atmosphere, whilst the major portion is absorbed by the surface roots. Thus at both ends the Grapes make much out of the small but regular supplies of nourishment. Other cultivators mulch the border with sweetened stable litter, the straw having been shaken out, and keep this regularly damped, adding a little fresh material occasionally. Everyone, therefore, can feed Vines in some way or other, and those means that encourage surface roots are much the best.—G. A.

OPEN AIR PEACHES.

IN his critique on Mr. Iggulden's article "Nous Verrons" (page 144) makes use of the observation "that it is in the interest of science and good gardening that he has brought this subject to the front." Well let us carry on the discussion a little further, and see how far the article in question as written by Mr. Iggulden has departed from such. I re-read Mr. Iggulden's article carefully, and the only part I could see that "Nous Verrons" could "stretch a point on" was in the part where it was mentioned that the writer had lifted two young Peach trees whilst in full flower, and without any harmful results, a statement which I can fully believe, as the Peach, like the Vine, is one of the most tractable fruit-bearing subjects under the sun. When reading that part of Mr. Iggulden's article it naturally occurred to me that it was to illustrate that Peach trees could be lifted without the fear of any harmful results

accruing until immediately before growth commenced, the same, for instance, as at the fall of the leaf, the time usually adopted for such operations.

There are often circumstances beyond the gardener's control which may prevent the work from being attended to at the orthodox time, and under such circumstances it is well to act up to the old adage, "better late than never." I have seen healthy trees lifted from the open walls just as the buds were on the point of bursting and replanted immediately under glass, and the trees carried a fair crop of fruit the same season. I should naturally look for fuller crops from trees lifted when the fruit buds had commenced to move, that is, if the work could not be attended to at the fall of the leaf, than if they were lifted at midwinter. The growth and root action at the time (spring) indicated is just commencing, and I am certain that there would be no more harmful results than would happen to a Fuchsia or any other deciduous plant or tree, or even the Vine.

"Nous Verrons" views about the extra work involved is more imaginary than real, as I am sure he will agree when he thinks the subject out further. I do not say that I would recommend lifting the trees whilst in full flower, or did I gather from Mr. Iggulden's article that he did, it being simply a passing reference. Whether the trees bore any fruit perhaps Mr. Iggulden would oblige us by stating; but as regards healthy growth following I cannot see what could prevent it being otherwise. As regards "Nous Verrons" comments on Mr. Iggulden's recommending the trees being either lifted or root-pruned whilst in full bearing, he certainly could not have been writing seriously. I naturally took it to mean at the usual time adopted for such work, and not with the fruit and leaves on them.

I now come to "Nous Verrons" objections as to the advisability of lifting the roots whilst the trees are in full bearing "order," please mark the term. Here I may say that "Nous Verrons" is entirely at variance with that "science and good gardening" he is so anxious to uphold. Peach growing on open walls is what I take a special pride in, and during the past five years we have not missed a crop of fruit—not a part of a crop, but a good one. Even "Nous Verrons" will admit that the quality was good when I state that from these trees fruit was produced which fetched 15s. per dozen in Covent Garden Market; this was the top price, others fetched from 8s. upwards. These prices were in the autumn of 1890 when sixteen of the trees were re-lifted, root-pruned where necessary, and also received the addition of a little fresh loam and wood ashes. Last season fruit from these very trees fetched from 8s. to 12s. per dozen, the latter the top price. Fruit being more plentiful generally made the difference in the price from the preceding season. The remaining four trees were not lifted simply from want of time, and my also thinking that they would tide over the season. The difference could be seen to a tree. Fruit there was in plenty, but it did not finish like those which were operated on, and the foliage also had a very yellow cast, which the remainder had not, but which they would have had if they had been left alone. Now these trees, I may safely say, are in full bearing "order," but yet if we were to leave them alone the trees would very quickly fail. The utmost limit I would leave them alone is three seasons, and then they have to be well attended to during the growing season.

In passing, I may say that "Nous Verrons" is "stretching another point" when he states that Mr. Iggulden recommended the roots to be manipulated "yearly." Now I find that in respect to these trees which are in "full bearing order" root-lifting must be resorted to if they are to be kept in good health, and so not become affected with the "yellows," or disease, or whatever you may like to call it, I find them so addicted to on cold soils. Deeply running strong roots we seldom find, but opening out a trench 6 feet from the bole of the tree and working inwards to 3 feet, also shortening any coarse roots, filling up again, and laying the roots out carefully as the soil is being filled in, with the additions as stated above, cannot but have a very favourable result on the continual well-being of the trees.

The above is also the practice of other good growers, who are looked up to as shining lights in the horticultural world. I fancy that "Nous Verrons" will find that Mr. Iggulden's views will receive more practical support than he imagines, and will also set some of those "old fogies" thinking who are afraid to touch even a root, let alone lift either the Peach or Vine. In conclusion, I cannot help thinking "Nous Verrons" has overstepped his case, and that upon consideration he will modify his views on the practice he has so valorously assailed.—A. YOUNG, *Abberley Gardens, Stourport.*

WITH regard to Mr. Iggulden's remarks on lifting young Peach and Nectarine trees in bloom, it would not of course be a practice he or anyone else would advise in a general way for many reasons, but that transplantation at that stage "when necessary," can be carried out with good results there is no manner of doubt. Indeed, if the trees have good balls, and fibrous roots, and proper after-treatment, I see no reason why "moveable" trees should suffer by such an operation at any time from early spring to autumn. A year or two ago I had occasion to plant a border with late Strawberries in front of a wall facing north-west, and which I wished to occupy with Plums and Morello Cherries. Being loth to disturb the Strawberries after planting I determined to plant the wall trees first, which I did with the best results. Both Plums and Cherries were from 8 to 9 feet spread, and fan-trained; these all, as a matter of course, had good balls of soil with their roots, and were, after planting, well soaked with water for three or four days, and also kept damp overhead by frequent syringings. The trees in question not only

retained all their foliage but also a few fruits which happened to be on them at the time, and these matured and ripened. This operation was carried out on August 8th, 1887.—J. A.



EVENTS OF THE WEEK.—A meeting of the Brighton and Sussex new Horticultural Society takes place to-day (March 10th), and of the Royal Botanic Society on the 12th. Auction sales will take place at Messrs. Protheroe & Morris's rooms as follows—Friday, March 11th, at half past twelve, choice Orchids, by order of Messrs. Linden, Brussels; Monday, March 14th, hardy perennials and Cactus Dahlias, at 11.30 A.M.; Wednesday, March 16th, Lilliums, Roses, and other plants, at 11.30 A.M.

— **THE WEATHER.**—During practically the whole of the past week the cold wave referred to in the last issue has been maintained. The wind has remained in the north and east, with frost constantly prevailing. There was a slight thaw on the 5th inst., and some appearance of a change, but it quickly disappeared, and on the following day, also on Monday and Tuesday, the wind was in the east with slight frost day and night. Early yesterday (Wednesday) morning 14° of frost were registered on the grass near London, but at 5 A.M. the thermometer stood at 31° in the city, the wind had shifted to the south-west, and there was every appearance of a change to warmer weather. Later in the day snow came with a falling barometer.

— **INTERNATIONAL HORTICULTURAL EXHIBITION.**—Good progress is being made in the preparations for the series of horticultural exhibitions to be held during the season at Earl's Court Kensington. The General Committee met on Tuesday last, Mr. W. Marshall, in the absence of Mr. H. E. Milner, presiding. Draft schedules were revised, a substantial amount being allocated in prizes, those for the great May Show amounting to about £750. The classes are numerous and representative, and may be expected to ensure the best competition.

— **GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—Mr. George J. Ingram, Secretary of this Institution, writes from 50, Parliament Street, London, S.W.:—"Kindly announce in your next issue that our fifty-third anniversary festival dinner will take place on Wednesday, June 29th, 1892, at the Whitehall Rooms, Hotel Métropole, on which occasion Sir Julian Goldsmid, Bart., M.P., has kindly consented to preside, and that I shall be pleased to hear from gentlemen willing to act as stewards."

— **THE GARDENERS' ORPHAN FUND.**—The meeting of gardeners of the Kingston District to which we referred last week was held in the Albany Hall on Saturday evening last. There was a capital response to the circular issued, and a large attendance. Mr. E. Burrell, the estimable gardener to the Duchess of Albany at Claremont, was unanimously elected Chairman, and Mr. A. Dean Secretary. The latter, on the invitation of the Chairman, gave a full exposition, first as to the nature and objects of the Orphan Fund, and secondly the special objects of the meeting—viz., to endeavour to organise a concert in aid of the Fund. It was unanimously agreed that the concert should be given, that it should be shortly after Easter, and that a sub-committee be appointed to carry out the object, consisting of Messrs. Burrell, A. Dean, Austen, Jeal, Herbst, Cox, Cullimore, Martin, Walker, jun., Ward, and Hawkes. Mr. Dean placed his house at the disposal of the Committee for meetings, which offer was cordially accepted.

— **CELERY AND THE FROSTS.**—I read with some surprise of the state in which "M. H., Somerset" found his Celery after the frosts, as recorded in the Journal. It need not have been so had the ridges been covered with a little long litter from the stable. We used not to do this, but in our strong soil could not keep Celery at all, as it became frozen and afterwards decayed rapidly owing to the stems being rendered soft by frost, but since we had recourse to covering the whole with litter we rarely find a decayed stick, and find no trouble at all in having Celery as late as April and sometimes May. Our plan is to cover the ridges entirely over during frosty weather, but the moment the thermometer rises above freezing point the litter is drawn off to give the plants air and light. They are thus in a better condition to withstand hard frost than they would be if continually covered; especially if the weather during the day be bright and warm.—E. M.

— CROYDON HORTICULTURAL SOCIETY.—The report and statement of accounts of this Society came to hand, and it is satisfactory to see a balance, if not a large one, on the right side. The annual Show is fixed for Wednesday, July 6th. Mr. A. C. Roffey is the able Secretary.

— THE INTERNATIONAL FRUIT SHOW.—A Sub-Committee appointed to prepare a schedule of prizes sat for several hours last week, and made considerable progress. The business was resumed on Wednesday the 9th inst., and a good advance made in the completion of the work, which will be very comprehensive.

— UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this Society will take place at the Caledonian Hotel, Robert Street, Adelphi Terrace, Strand, on Monday evening next, March 14th, at eight o'clock. Mr. Robert Cannell will preside.

— SLUG TRAPS.—A much more simple and effectual way of dealing with these pests than the one suggested by "H. W." is to lay pieces of rotten boarding about upon the soil wherever slugs abound. The decaying wood attracts them, and they adhere to its under side in quantities. These traps should be frequently looked over, and the slugs despatched as convenient.—B. D. K.

— TASMANIAN FRUIT.—The Peninsular and Oriental Steamship Company have arranged that their steamers shall make twelve visits to Hobart, Tasmania, for the purpose of bringing to England a consignment of 240,000 bushels of Apples. The first lot has been despatched, and will arrive in London towards the end of the present month. The fruit is packed in cool chambers during the voyage.

— THE LEEDS PAXTON SOCIETY.—The sixth annual dinner of the members of this Society took place on Thursday evening, March 3rd, at the Wheatsheaf Hotel, the Mayor of Leeds presiding. The Secretary, Mr. Geo. Cooper, read the annual report, which compared favourably with those of previous years. There were about eighty members present. Delegates from Sheffield, Rotherham, Batley, Dewsbury, Bradford, Wakefield, Morley, Barnsley, and Rotherwell attended on the occasion.

— THE QUALITY OF APPLES.—Having tested over fifty varieties of Apples for quality during November, December and January, I have given Bismarck * * * as being one of the best Apples for quality in cultivation. I am delighted to see Apple notes by Mr. Rivers, more particularly the cooking test results, and hope to see a continuation of notes on quality from so competent a judge and grower. Would other growers and judges contribute their experience for the benefit of all who are interested in our national fruit, particularly from the quality standpoint? If time permits I may do so.—W. S.

— EXHIBITION IN THE ISLE OF MAN.—An international exhibition of industry, science, and art is to be held at Belle Vue, Douglas, Isle of Man, this year, opening on the 4th of July and closing in September. There are sections for horticulture and agriculture, the former comprising ornamental trees and flowers, hothouses, conservatories, vineries, garden implements, flower-pots, borders, seats, chairs, statuary, fountains, rustic houses, arbours, and bridges. Particulars can be obtained of the General Manager, Mr. Henry Pearson, Exhibition Buildings, Belle Vue, Douglas, Isle of Man.

— AMERICAN FRUIT FOR BRITISH MARKETS.—In the week ending February 13th the shipments of fruit were said to comprise from Boston to Liverpool 5890 barrels, to London 1337 barrels, to Glasgow 1973 barrels; a total of 9200 barrels. From New York to Liverpool 6200, to London 2100, to Glasgow 2100; a total of 10,400 barrels. From Portland to Liverpool 13,713 barrels, making the total shipments 33,313 barrels, of which 25,803 went to Liverpool, 3437 to London, and 4073 to Glasgow. Shipments from Halifax not reported. This brings the amount of shipments up to that date to 1,239,552 barrels, being 790,385 to Liverpool, 170,727 to London, 255,593 to Glasgow, and 22,847 to other ports.

— LETTUCE GOLDEN QUEEN.—This is a decided acquisition and should be grown by all who can appreciate a quick growing, crisp, and tender Cabbage Lettuce. It forces readily, requires no more room than the now well-known Early Paris Market, and is very early when planted on warm borders. We had some of it in use nearly all last season, the quality being greatly admired by all. When growing the leaves are of a golden colour, while the heart is moderately large, remarkably close, and very superior in every way. Golden Queen is a good early companion for Messrs. Veitch & Sons' other excellent and distinct Cabbage Lettuce Perfect Gem.—I.

— THE WEATHER IN IRELAND.—The thermometer on Sunday night, the 6th, registered 13° of frost. Frost still continues and snow falls at intervals.—SAMUEL SCOTT, *Rathmore, near Belfast*.

— THE WEATHER IN THE NORTH.—Following the heavy snow-fall of the 21st ult., and the immediate thaw, we have had a fortnight of dull cold weather, enlivened by one or two days of bright sunshine. Some days were bitterly cold, with easterly or northerly winds. The last week has been frosty throughout, 5° frost being recorded on the night of the 3rd inst., 11°, 9°, 9° on the three following. Farmers report a capital "tid" for getting in the Bean crop in the heavy clay land.—B. D., *S. Perthshire*.

— THE WEATHER AT RIPLEY, YORKS, DURING FEBRUARY.—With the exception of the 11th, 12th, and 13th February was a very cold and trying month, being in strong contrast to February, 1891. During the third week the cold was very severe, the mean temperature for that week being 25·8°. Rain and snow fell upon twenty-two days, the greatest daily fall being 0·80 of an inch on the 14th, total for the month 2·39 inches. Highest maximum temperature, 57° on the 12th; lowest minimum temperature, 5° on 19th. Frost was registered upon twenty-six days. Mean reading of barometer, 29·87; mean maximum temperature, 42·4°; mean minimum temperature, 27·1°; mean temperature, 34·8°.—J. TUNNINGTON, *Ripley Castle Gardens*.

— REPORT OF WEATHER DURING FEBRUARY, 1892, FROM OBSERVATIONS TAKEN AT HAMELS PARK.—February has not been so congenial a month for gardening as the corresponding one of 1891; there was not one clear bright day during the whole month, whilst last year during February we had eleven beautiful bright days. The temperature during the past month has been for the most part very low during the daytime, and followed by exceptionally sharp frost during the night. The most frost registered has been 23° on the morning of the 19th. Rain fell upon fourteen days during the month. The maximum in any twenty-four hours was 0·50 on the 15th; minimum, 0·02 on the 6th. Total during the month, 1·83; against 0·11 of 1891.—E. WALLIS, *The Gardens, Hamels Park, Buntingford, Herts*.

— FEBRUARY WEATHER IN LINCOLNSHIRE.—February was remarkable for a deep snow on the 15th, when 8 inches = 0·70 inch rain, fell in five hours, and 0·04 inch melted as it fell. It was also remarkable for severe frost on the 17th and 19th, when the minimum temperature was 0°. The wind was in an easterly direction thirteen days. We had five bright days, some of which were partially clear. The total rainfall was 2·44 inches, which fell on nineteen days, the greatest daily fall being 0·85, which fell as snow on the 15th. The barometer was highest, 30·51 at 9 A.M. on the 13th; lowest, 29·04 at 9 P.M. on the 2nd. The highest shade temperature was 56° on the 7th, the lowest, 0° on 17th and 19th. The lowest on the grass was 4° on the 17th. Mean of daily maxima, 43·38°; mean of daily minima, 29·83°; mean temperature of the month, 36·60°. The garden spring ran thirty-four gallons per minute on the 29th. Vegetation is very backward at present.—W. H. DIVERS, *Ketton Hall Gardens, Stamford*.

— WEATHER IN NOTTS.—The following summary of meteorological observations during February at Hodsock Priory, Worksop, is sent by Mr. Joseph Mallender:—Mean temperature of the month, 37·5°. Maximum on the 7th, 54·7°; minimum on the 19th, 14·7°. Maximum in the sun on the 23rd, 99·7°; minimum on the grass on the 17th, 9·3°. Mean temperature of the air at 9 A.M., 36·4°; mean temperature of the soil 1 foot deep, 37·5°. Nights below 32°: in shade, eleven; on grass—twenty-one. Total sunshine in the month, sixty-three hours, or 23 per cent. of possible duration; we had eleven sunless days. Total rainfall, 1·95 inch; rain fell on seventeen days. Wind: Average velocity, 10·5 miles per hour; velocity exceeded 400 miles on four days, and fell short of 100 miles on three days. Approximate average for February:—Mean temperature, 39·5°; sunshine, fifty-six hours; rainfall, 1·58 inch. A cold and rather wet but fairly sunny month. Snow showers fell on several days, but it was never more than about half an inch deep on the ground. The minimum temperature in the shade is lower than in any of the last sixteen Februaries.

— WEATHER REPORTS.—I, as one of the weather correspondents, admit the justice of Mr. G. J. Symons' rebuke to us. The weather with him, if I mistake not, is a speciality, and of course the omission of our localities from the reports renders them valueless to one so interested in the matter. We are situated in the north-western part of Staffordshire, about four miles north-east of Stafford on the north-western side of the Trent Valley, the gardens being on the rising ground.—A. V. M., *Sandon Hall Gardens, Stone, Staffs*.

— ANCIENT SOCIETY OF YORK FLORISTS.—A schedule of the "Thirteenth Great Floral and Musical Fête and Exhibition of Chrysanthemums" of this Society has been received. The dates fixed for the Show are November 16th, 17th, and 18th. Mr. John Lazenby ably wields the secretarial pen.

— PAPER WHITE NARCISSI are flowering better this year than usual. The delicious scent of its flowers is much appreciated, and so also is their purity of colouring. Considering the ease with which this Narcissus can be cultivated it is a capital plant for amateurs to undertake. Four bulbs in a 6-inch pot will make a good show. After the pots are full of roots they should be removed from the plunging material to a cool house if not required very early, where they may remain to flower, and will be all the stronger by the absence of artificial heat.—S.

— SEVERE FROSTS.—Can any of your correspondents give me the date of the severest frost that was known in England in 1860 and 1861, and since that time? The reason why I am asking for the information is because we had 38° of frost on the 17th of February last, and I told my employer I could not remember such a severe frost since 1860, so that he is anxious to have the information requested through the *Journal of Horticulture*.—A TWENTY-SEVEN-YEARS SUBSCRIBER. [There is a singular omission on the part of our correspondent. He does not give his address, or indicate his locality in any way.]

— D'ARCY SPICE APPLE.—Mr. B. R. Cant sends us from Colchester excellent specimens of this late dessert Apple, and we suspect it would be difficult to find Apples richer in quality at this season of the year. As is stated in the "Fruit Manual," "This valuable Apple was discovered in the garden of The Hall, Tolleshunt D'Arcy, near Colchester, and many old trees are still existing in that neighbourhood. It was always known by the name of D'Arcy Spice, or simply Spice Apple, till 1848, when Mr. John Harris, a nurseryman at Broomfield, near Chelmsford, propagated it from grafts taken from one of these old trees, and sold it under the name of Baddow Pippin. A few years later Mr. Rivers of Sawbridgeworth put it in his catalogue as Spring Ribston." It may be remarked, however, that this name is given to the Boston Russet in some districts.

— THE *American Florist* says the FIRST ANNUAL CONVENTION OF THE AMERICAN CARNATION SOCIETY held at Buffalo on the 16th ult. was a scene of great activity—a veritable nest of Carnation enthusiasts, who were constantly arriving with boxes nearly as long as themselves, and which when opened disclosed marvellous blooms of this divine flower, with stems of unprecedented length. No sooner was the box displayed than scores of heads were closely bunched over it, and it was only after Mr. Scott had requested that the room be vacated by all except those with goods to unpack that anything could be done toward arranging the exhibition. There must have been over 3000 blooms on hand. While being staged the corridors in the neighbourhood of the room were taken possession of by enthusiastic members who could talk nothing else except soils, temperatures, burstings, vigour, and other matters of vital importance to carnationists.

— A SIMPLE MOUSE TRAP.—Although the figure 4 trap, so lucidly explained a few weeks ago, is generally conceded to be an excellent device for the destruction of mice, I will describe one which is even better and certainly much more simple in its manufacture. My experience of the figure 4 trap is that the vertical strip fails to fall if all the three are not most accurately made and fitted together when set, otherwise the trap is excellent. My plan is this—presuming mice are to be caught in the garden about the rows of Peas—take an ordinary brick, set it firmly on its edge on the surface soil near where the mice are troublesome, then with a second brick smooth and make firm the soil the width of a brick on the flat alongside the one on its edge. Procure a piece of common galvanised wire about the thickness of an ordinary darning needle and 2½ inches long, and bait it in the middle with a small piece of toasted cheese, the wire being pushed through the cheese when the latter is hot, which renders it adhesive. Place one end of the wire against the middle of the brick on edge; and with the opposite end in an upward slanting direction support the second brick, which is set upon its extreme edge in a leaning direction to the first brick, and at such a distance from it that when the mice nibble the cheese the slanting position of both wire and brick admits of the wire falling upon the slightest touch. The second or leaning brick falls flat on to the soil, just missing the upright brick, but on to the mouse, killing it instantly. This is a kind of trap very easily set, but very secure from accident. I have tried both kinds largely, and like this one much the best.—E. MOLYNEUX.

— INVINCIBLE CROCKS.—Mr. A. Porter has sent us from Maidstone samples of the brass wire "Cocks" he is now advertising. They appear to merit their name, for we cannot imagine that the most ingenious of worms or other creeping things could manage to wriggle through them. They are simply for placing over the holes in flower pots to be covered with ordinary drainage materials. They will, no doubt, be used by growers of Chrysanthemums, Roses, and other plants that are stood on walks in the open air where thick layers of ashes are not admissible and boards not at hand or desired. These cocks, besides being invincible are durable and cheap, and Mr. Richard Gilbert appears anxious to embrace the inventor for the boon conferred on "brothers in arms."

— THE CARNATION.—Mr. E. S. Dodwell writes:—"Will you pardon me if, to your very generous notice of my little book (see page 168), I desire to make one small emendation? I do not say the ideal of the florist is outside rule or plummet. I commend—earnestly commend—the study of the ideal to my fellows; but as earnestly I urge 'that ideal is no creature of the imagination; it rests upon immutable law, ever open to the reverent student.' 'For rule and compass, line and plummet let them go to the Rev. George Jeans.' I do not presume to speak, I should not dare to think, of myself as an authority; but I am assured that in the essays by Mr. Jeans, first published in the 'Florist' some forty years ago, on the 'Philosophy of Florists' Flowers,' my friends and fellows will find all they can desire to know."

— ROYAL METEOROLOGICAL SOCIETY—THIRTEENTH ANNUAL EXHIBITION OF INSTRUMENTS.—At the ordinary meeting of the Society to be held at 25, Great George Street, Westminster, on Wednesday, the 16th inst., at 7 P.M., the President, Dr. C. Theodore Williams, will deliver an address on "The Value of Meteorological Instruments in the Selection of Health Resorts," which will be illustrated by a number of lantern slides. The meeting will be adjourned at 8.30 P.M. in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of instruments, charts, maps and photographs relating to climatology, and of such new instruments as have been invented or first constructed since the last Exhibition. The Exhibition will be open from Tuesday, the 15th inst., to Friday, the 18th.

— THE GARDEN ORACLE.—This useful annual, published at the office of the *Gardeners' Magazine*, has only just reached us. The thirty-three previous issues were produced by the late Mr. Shirley Hibberd, and we had pleasure in referring to many of them approvingly. The present edition has been prepared by Mr. Hibberd's successor, Mr. George Gordon, and while it is increased in size, the variety and usefulness of the contents afford ample evidence of the good judgment that has been exercised by the diligent compiler. We wish also to take this opportunity of congratulating Mr. Gordon on the admirable production of the two thousandth weekly number of the paper which he edits so well.

— HESSLE AND HOWDENSHERE HORTICULTURAL SOCIETY.—At the recent annual meeting of this Society it was unanimously resolved that in future the Society should be conducted on a much more extensive scale, and that the Winter Show should give place to a Summer Show of plants, flowers, fruits, and cottage garden produce on high-class lines; and, in fact, that it should be made the principal Show of the district, special arrangements having been made with the N.E. Railway Co. to run trains direct to Hessle from Beverley, Cottingham, and other places. It is intended that the Show shall be open for two days—viz., on Wednesday and Thursday, July 27th and 28th. The classes will be numerous and varied, embracing some open to all England, others to exhibitors residing within a certain radius, and others to cottagers only. Hearty support is being given to the movement by the leading families in the district, and substantial sums are promised towards the schedule. Hull has shown what can be done in Chrysanthemum Shows, and we trust the present laudable endeavour will have equally successful results. It is at least as desirable to attempt to draw town populations into adjacent rural or semi-rural villages in summer as to attract country residents to flower shows in stifling towns. The officials of the Society are:—President, Mr. Francis R. Pease, J.P.; Vice-Presidents, Mr. Arthur Wilson, D.L. (High Sheriff of Yorkshire), Mr. George Bohn, the Rev. Arthur Kaye, M.A., Mr. Benjamin Whitaker; Chairman of Committee, Mr. Algernon S. Ayre; Hon. Treasurers, Messrs. Edward O. Dykes, D. Vaughan; Hon. Secretaries, Messrs. Ernest M. Clarke and R. Falconer Jameson, F.R.H.S. These gentlemen will not be satisfied with anything less than a complete success, and they will do all that can be done to attain their object.

TUBEROUS BEGONIAS.

AMONGST other things, flower shows are now beginning to teach the public the value of Tuberous Begonias. Classes for these grand flowers are becoming more frequent every year. Far the most attractive

conservatory flowers possess it in the same degree. The largest bloom is not coarse; the most brilliant one is not gaudy. The commanding merits of these plants consist largely in that, and to no inappreciable extent in good habit of growth and ease of culture. It is satisfactory to note that the improvement which still goes on is not confined to the



FIG. 27.—TUBEROUS BEGONIAS.

features amongst the flowering plants at many large exhibitions are the classes for Begonias. For interest and beauty specimen plants cannot vie with them. In these flowers there is that rare combination in colouring—richness, refinement, and diversity. Few greenhouse or

flowers. Breeding for blossom has been the bane of many a valuable plant, for its constitution has been weakened and its habit of growth impaired. It is not the same with the Begonia. Hybridisers have worked with success for compactness of growth, good foliage, and

sturdiness and strength of flower stalk. This is well. A good flower is of little use if crushed and half hidden among the foliage. It should be pushed up boldly, looking the grower cheerfully in the face, and if out there is something to hold it by. A good collection of plants will testify to what is being done in this way. It is very gratifying that foliage is being thought of. A well grown *Tuberous Begonia* is handsome by its leaves alone, and they are a fine foil for the flowers. The ideal plant is dwarf, with ample foliage compactly arranged, and the flowers borne well above it on substantial stems.

Of the improvement in the blooms it seems almost superfluous to speak. Surely the most beautiful Hollyhock is not so fair as some of the double *Begonias* are. Superb in form, in softness and purity of tone, they lack only fragrance to equal, if not eclipse, even the Rose. The singles, too, are a sight to see—a flood of crimson, carmine, scarlet, orange, salmon, rose, pink, bluish, and white of a delicacy that the painter's brush could not reproduce. A collection of them in pots provides a beautiful display. There is room for a good number of plants a foot high and through in many establishments, and when freely furnished with their charming flowers they are striking in their richness and diversity. Out of doors they are equally valuable. Large breadths of them are grown in some of the nurseries, and an acre of *Begonias* presents extraordinary features. First the ground is tinged and tinted with specks of colour as the early varieties commence to bloom, then as the summer wears on it is warmed with a deeper glow, until at length the developed beauty of the flowers clothes it in a hundred hues. The sun does not burn the flowers away, nor the rain quickly dash them to pieces. Their substance and endurance enable them to make a brave fight with the elements, and the plants flower on unweariedly. As time goes on they must take higher rank as garden flowers, not to the exclusion of standard annuals and perennials, for then they might become as tiresome as Zonal *Pelargoniums* once were, but to be used, as the latter might be, for imparting brightness and life where warmth of colour is wanted.

Our seeds are sown the first week in February in pans of very finely sifted soil, consisting of one part each of loam, peat, leaf mould, and sand, pressed down quite smooth, and a little sand sprinkled over the surface. The seeds are scattered thinly in the pans and covered slightly with dry sand to keep them from being shifted in watering. The seeds being very minute, water must be applied with the finest rose pot, or they are liable to be washed over the sides of the pan. A square of glass is afterwards placed on the pan to prevent evaporation, but it must be removed as soon as the seedlings appear. A slight hot-bed in a Melon or Cucumber house is a good position to favour the seeds germinating quickly.

Begonias are very slow-growing plants in their earlier stages, thus water must be given judiciously, otherwise the surface soil becomes sour. The little plants must be pricked out into well-drained pans as soon as they are large enough to handle, using a soil similar to that above mentioned: and later on, when fairly strong, they should be potted into 3-inch pots, and eventually shifted again into 6-inch and 7-inch pots, in which they flower. For this final potting a more substantial compost is necessary. We use two parts good turfy loam, one of well-decayed hot-bed or cow manure to one of road grit, and in addition to this we mix a little artificial manure in the proportion of about a 3-inch potful to a barrowful of soil; this induces the plants to grow quicker than when solid manure only is used. We never water with liquid manure until the plants commence flowering, at which time the pots are filled with roots; stimulants are given frequently from this time onwards; liquid cow manure and soot suit them admirably. From a packet of seeds we have obtained five dozen plants, quite half the number being double flowering sorts. All are remarkably good, equal to those represented by fig. 27, and scarcely two are alike.

In planting *Begonias*, some kind of carpeting plant is used, such as *Mesembryanthemum cordifolium variegatum* or *Sedum*. *Koniga variegata* is very pretty, but with us it grows too tall. Besides showing off the *Begonia* flowers to advantage, it also serves to prevent their being splashed with soil during heavy rains. After the stems have died down in the autumn, the tubers must be lifted and stored away in boxes of sand, dry soil, or cocoa-nut fibre refuse anywhere from the reach of frost, until the spring, when they will show signs of starting into growth again. They should then be watered and placed in a greenhouse or pit, potting them singly into 4 or 5-inch pots when they have made an inch of growth preparatory to planting in the flowering beds.

Where it is necessary to increase the stock in the spring, the plants should be started early, when tubers with two or three shoots may be divided, or the growths may be taken off and struck in small pots filled with sandy soil; these, if kept close and not too moist, will strike readily and be fit for planting with the others in May. During July and August they can be struck like *Pelargoniums* in an open border.—W.

BLACK BRYONY.

In reply to "S. S.," page 164, this name is sometimes applied to *Tamus communis*, the only British representative of the *Dioscoridæ* or *Yam* family. It is not uncommon in many parts of England, and is an elegant perennial climber with glossy heart-shaped leaves, which often turn to a purplish colour in the autumn, when the plant is thickly studded throughout the greater part of its length with clusters of bright scarlet berries; these remain for some time after the leaves have fallen, and I have always been told they are very poisonous. The plant usually grows in hedgerows, and "S. S." will probably have no difficulty in

procuring a plant in his neighbourhood a few weeks hence, but at this season of the year it is very difficult to find, as it dies down to the root-stock every winter.—W. H. DIVERS, *Ketton Hall Gardens, Stamford.*

Re "S. S.'s" inquiry for Black Bryony, *Tamus communis* (page 164) I send Bentham's description of the plant, whereby he may know if he has observed it growing in his neighbourhood. If, however, he does not recognise any member of his wild flora answering thereto I shall be happy to forward a root to him or his friend, if he will furnish me with the address.

From Bentham's "Handbook of British Flora," *Tamus communis* (Black Bryony).—"An elegant climber, twining to a considerable length over hedges and bushes, easily known by its bright, shining heart-shaped leaves, with a tapering point, and sometimes almost three-lobed, but otherwise entire. Flowers small, of a yellowish green; the males in slender racemes, often branched, and longer than the leaves. The females in much shorter and closer racemes. Berries scarlet, often very numerous."

"In hedges, open woods, and bushy places, dispersed over nearly the whole of England, and common in some counties, but not found in Scotland or Ireland. Flowers spring and early summer."—THOMAS SMITH, *The Gardens, Henbury Hall, Westbury-on-Trym, Bristol.*

ROYAL HORTICULTURAL SOCIETY.

MARCH 8TH.

THE cold weather did not prevent the bringing together of an attractive Exhibition on the above date, although frosty air and cutting winds are adverse to the safe conduct of indoor plants to and fro. The Drill Hall was surprisingly well furnished with flowers, and presented quite a gay appearance, considering the time of year and the unpropitious season.

FRUIT COMMITTEE.—Present: P. Crowley, Esq., in the chair, with Dr. Hogg and Messrs. T. Francis Rivers, John Lea, A. H. Pearson, H. J. Pearson, J. Smith, H. Balderson, F. Q. Lane, J. Hudson, G. Wythes, G. Clyffe, G. Taber, Sidney Ford, C. Ross, J. Cheal, G. Bunyard, W. Warren, A. Dean, J. A. Laing, Harrison Weir, and J. Wright.

A dish of Improved Ashmead's Kernel Apple was sent by Mr. J. Watkins, Pomona Farm, Hereford. The fruits were of good size, and the tree is said to bear more freely than its prototype. The quality was excellent, and an award of merit was accorded. Seedling Apples were sent from Monmouthshire, rather attractive in appearance, but failing in quality, and passed. They were raised from Alfriston. Mr. Payne, gardener to Sir Thomas Farrer, Bart., Abinger Hall, Surrey, sent splendid fruits of Annie Elizabeth Apple grown on the sand, and a vote of thanks was accorded.

Dishes of very large Florida Oranges in three varieties, "Russels," "Navel," and "Brights" as grown by J. T. Hopwood, Esq., Ketton Hall, Stamford, on his estate at Biglow, Orange County, Florida, were examined by the Committee. The Russels and Navel were considered of good quality, and a vote of thanks accorded. Mr. W. Poupert, Twickenham, sent a sample of Seakale as grown by him for market, being a portion of the produce of sixteen acres of roots forced in pits covered with wooden shutters protected by litter, the heat being afforded by hot-water pipes. A cultural commendation was awarded.

FLORAL COMMITTEE.—Present: Messrs. W. Marshall (in the chair), B. Wynne, C. F. Bause, H. Herbst, B. Dean, H. B. May, Walter Forze, W. C. Leach, G. Phippen, H. H. D'Ombra, T. W. Girdlestone, W. Bain, C. J. Salter, N. Davis, T. Baines, C. Noble, Harry Turner, J. Fraser, G. Paul, R. Owen, C. T. Drury, G. Gordon, G. Nicholson, F. Ross, and E. B. Lowe.

A selection of New Holland plants came from Messrs. Hugh Low and Co., Enfield, comprising *Erica melanthera* and *persoluta alba*, *Boronia megastigma* and *B. heterophylla*, *Acacia armata* and *Dramondi*, *Eriostemon linearifolius*, *Pullenia stricta*, *Epacris Diadem*, *Chorozema Lowi*, *C. cordata splendens*, *Genetyllis tulipifera*, *Genista fragrans*, *G. Atleeana*, and many other attractive plants, the whole forming a very bright display, and admirably illustrating the value of this once popular but now too neglected class of plants. A silver Flora medal was awarded. A beautiful collection of *Camellia* blooms came from Messrs. Wm. Paul & Son, and reminded visitors of the great usefulness of these magnificent flowers at the present season. The excellence of the Waltham Cross flowers is well known, and the varieties exhibited on the present occasion comprised such beautiful varieties as *Donckelaari*, *Comtesse de Hainaut*, *Adelina Benvenuti*, *Lady Hume's Blush*, *Alba Plena*, *Mathotiana*, *Countess of Derby*, *Fimbriata*, and *Montironi*. The silver-gilt *Banksian* medal that was awarded was well merited. *Cinerarias* of an excellent strain were exhibited by Messrs. J. Veitch and Sons, Chelsea, the flowers being shown without dressing, but being none the less conspicuous for admirable form. They were smooth, round, substantial flowers, with a considerable diversity of well marked colours, including a fine rich purple, with a suffusion of magenta, bright blue, magenta, white, rose, and chocolate. Several new *Amaryllis* were exhibited by the Chelsea firm, and they also showed *Amygdalus Davidiana alba* (see certificated plants). Messrs. Cutbush & Son, Highgate, exhibited a collection of the miniature *Richardia æthiopica* Little Gem, which has been commented upon before. Specimens a foot high in bloom are very attractive, and a vote of thanks was accorded.

A delightful display of spring flowers came from Mr. Phippen of Reading, who not only exhibits good material, but invariably displays

it tastefully. He had a central bank of Hyacinths in pots, with side groups of Tulips in large pans; these were interspersed with broad masses of Lilies of the Valley, *Scilla sibirica*, Crocuses, and Grape Hyacinths; and a silver-gilt Flora was awarded to the group. A small but handsome group of Clivias (*Imantophyllums*), exhibited by Mr. P. R. Davidson, The Gardens, Iwerne Minster, Blandford, attracted much attention, and a silver Banksian medal was awarded. Amongst the most noteworthy varieties were Duke of Clarence, Lord Wolverton (very bright salmon), and Ellen Terry, and there were several good seedlings. Daffodils were finely shown by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. He had a large group, including such popular varieties as Emperor, Golden Spur, Empress, Horsefieldi, rugilobus, Henry Irving, Cynosure, Sir Watkin, Ard Righ, and obvallaris; also albicans, Countess of Annesley, Regina Margherita, cernuus Princess Ida, Exquisite, and many others; Iris reticulata, Scillas, Scoliopus Bigelowi, and Primula oboconica completed the group, for which a silver Banksian medal was awarded.

One of the most interesting of the exhibits was a small but select collection of Anthuriums from Mr. W. Bain, gardener to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking. Both foliage and spathes were magnificent. There was a very richly coloured crimson seedling amongst them which received a certificate. See below.

ORCHID COMMITTEE.—Present: Messrs. H. J. Veitch (in the chair), Baron Schröder, J. O'Brien, E. Hill, James Douglas, Henry Williams, C. Pileher, H. M. Pollett, De B. Crawshaw, C. J. Lucas, E. Moon, F. Sander, T. B. Haywood, J. Jaques, Dr. Masters, and G. Le Doux. There were several interesting displays of Orchids.

Messrs. Pitcher & Manda, Hextable, Swanley, Kent, had a charming group, mainly composed of *Cypripediums*, such as *C. Pavoninum*, *C. Dominicanum rubescens*, *C. leucorrhodum*, *C. politum*, *C. Harrisianum*, *C. Bexalli nigrum*, *C. dilectum*, *C. Boxalli superbum*, *C. villosum superbum*, *C. chlorops*, *C. calurum Rougieri*, and several others, also a few *Cattleyas*. A silver Banksian medal was awarded. A silver Flora medal was awarded for a choice collection from Mr. F. Sander, St. Albans. These comprised *Sobralia xantholeuca rubra*, *Odontoglossum facetum*, *O. xanthinum*, *O. aspersum*, *O. Edwardi*, *Dendrobium phalaenopsis Schröderiana*, *D. cassiope*, *Zygopetalum erinitum purpureum*, *Cypripedium Crossianum gemmatum*, *C. Carrièrei*, *Masdevallia hybrida Gelenyana*, and *M. hybrida*. (See certificates) Messrs. B. S. Williams, Upper Holloway, had a small collection of Orchids and other plants. The former included a fine piece of *Phajus Cooksoni*, also *Dendrobium chrysodiscus*, *Calanthe Williamsi*, and *Lycaste Skinneri delicata*. P. Crowley, Esq., exhibited a spike of *Odontoglossum Rossi* bearing fifteen flowers, hence exceptionally fine. F. Wigan, Esq., exhibited *Odontoglossum Andersonianum*; J. W. Wilson, Esq., *Odontoglossum Rossi majus*; and A. W. Nixon, Esq., received a cultural commendation for *Odontoglossum maculatum*.

CERTIFICATES AND AWARDS.

The following were selected by the Committees for special honour:—

Amaryllis Mars (Messrs. Paul & Son, Cheshunt).—A medium-sized flower of splendid rounded form; colour rich scarlet crimson, habit vigorous, and a decided acquisition (award of merit).

Anthurium Andreanum sanguineum (Sir Trevor Lawrence).—A seedling raised by crossing *Andreanum* with another variety; a magnificent form, deep blood crimson. This splendid cross marks a distinct advance in richness and intensity of colour (first-class certificate).

Amygdalus Davidiana alba (Messrs. J. Veitch & Sons).—A beautiful Almond, the specimens shown having been cut from the same trees as those which furnished the examples exhibited on the 9th of February. The bare purple stems were densely clothed with white blossom, and undeniably attractive, while their beauty is evidently maintained over a long period (first-class certificate).

Cypripedium Ianthé (Messrs. J. Veitch & Sons).—A dwarf form of considerable beauty; lip green, deeply veined with brown; petals same hue; upper sepal green, broadly lined with purple, and margined with white (award of merit).

Cypripedium Brysa (Messrs. J. Veitch & Sons).—A hybrid between *C. Boissierianum* and *C. Scdeni candidulum*; lip ivory, tinted with green, and faintly suffused with rose; petals long and twisted, base green, suffused with rose towards the tips; upper sepal pale green (award of merit).

Masdevallia hybrida (Mr. F. Sander).—This is a small form, *Estradæ* × *Shuttleworthi*. The lower sepals are purplish mauve, paler towards the edge; the upper sepal rose dotted with brown (award of merit).

Odontoglossum Pescatorei, *Jackson's variety* (J. F. Jackson, Esq., J.P.).—A very beautiful and distinct form, the brown blotching being remarkably clear and even. This was one of a chance lot, and was bought for less than 2s. Twenty guineas have been refused for it (award of merit).

Botanical certificates were awarded to Messrs. Lewis & Co., Southgate, for *Disa incarnata*, a form with terminal spikes of small reddish orange flowers, the lip pale yellow spotted with brown; to Messrs. Hugh Low & Co. for *Dendrobium amethystoglossum*, a very distinct form with sprays of small flowers, sepals and petals ivory white, lip rosy purple; and to Mr. H. Bailey, gardener to W. L. Barclay, Esq., The Briers, Reigate, for an *Oncidium*, species unnamed, with racemes of very small brownish yellow flowers and brown lip.

In the afternoon a paper on "Plants for House Decoration" was read by Mr. J. Wills. At the next meeting, which is fixed for March 22nd, the cultivation of Melons will be dealt with by Mr. Ross.



"CHRYSMS."—A correspondent of the *American Florist* asks how this will do as an abbreviation for Chrysanthemums. He thinks "mums" is slangy, "Chrysanth" is frivolous, but that "Chrysms" seems to him to be both dignified and euphonious. We are not impressed with the "dignity" of the term.

— CHRYSANthemum EVA HOYT.—This new Chrysanthemum is thought in America to give promise of being a very acceptable addition to our list of yellow sorts. It is in the way of H. E. Widener, but a brighter colour, and it flowers later than that variety, hardly ever being in bloom previous to November 20th, and lasting until Christmas. In habit it is dwarf. It is anticipated that this variety will take rank as the best late yellow in commerce. It was raised by W. K. Harris, who sold it to T. H. Spaulding.

— KENT COUNTY CHRYSANthemum SOCIETY.—At the annual dinner of this Society, which was held on the 3rd inst. at the Bridge House Hotel, London Bridge, the chief feature was the presentation of a testimonial to Mr. H. A. Needs, the late courteous and indefatigable Honorary Secretary. The presentation of a handsome silver tea service was made by Mr. Stevens, Chairman of the Committee, who ably presided at the dinner, and Mr. Needs acknowledged the gift in appropriate terms. The company numbered about eighty, and the musical programme was unusually full, good, and enjoyable. Mr. H. J. Jones assumes the secretarial duties of the Society.

— SHEFFIELD, HALLAMSHIRE, AND WEST RIDING UNITED CHRYSANthemum SOCIETY.—A very neat programme card of the gatherings of this flourishing Society comes to hand from the energetic Secretary, Mr. Wm. Housley. Monthly meetings are held at the Museum, Orchard Street, Sheffield, and in addition to lectures and discussions a kind of miniature exhibition is held on each occasion, this adding greatly to the interest of the gatherings. We note with pleasure that a Summer Show, the date of which will be shortly fixed, is to be held in August. The annual Chrysanthemum Exhibition is announced for November 11th and 12th.

— BIRMINGHAM CHRYSANthemum SOCIETY.—It may be interesting to exhibitors and committees of other societies to know that the Committee of the above named Society have decided to divide their classes for forty-eight blooms into two classes—viz., one for twenty-four incurved, and one for twenty-four Japanese, the usual liberal prizes being equally divided between the two classes. The open class for twenty-four blooms, too, will be divided in a similar manner. This, it is anticipated, will augment the competition and simplify the judging. It will afford opportunities for competition to exhibitors who cannot manage a forty-eight, but who can muster a twenty-four, at the same time admitting, as before, those who are able to exhibit both. The Committee have further decided to introduce a rule making the use of gum or other adhesive substances in cut blooms or blooms on plants a disqualification, and further, that all Orchids exhibited at their next Chrysanthemum Show and their spring Show in 1893 shall be exhibited in the pots as grown, and not made up for the occasion.

— CHRYSANthemum MRS. ROBINSON KING.—I have been following the discussion on this subject from the start. To those pecuniarily interested it is of great interest to know who, and who only, holds the entire stock. It appears to me that no one single person can say he does. As Mr. Jones says, page 85, it would be interesting to know where Mr. Blair saw a single instance of the spurious varieties shown. I saw the variety staged by Mr. Blair, and failed to see any difference whatever between those from him and others, which were very few, and I had ample opportunities to judge of their similarity. Mr. Blair would do well, I think, to enlighten us on what he means by "spurious varieties," because I fail to see how there can be such things in Chrysanthemums, which are in all cases grown from cuttings. Were the plants raised from seed it would be another matter. Mr. Blair would impart some knowledge to Chrysanthemum cultivators if he would explain this point. According to my way of thinking any paleness in the colour of the blooms seen by Mr. Blair was due to culture, and that only.—OBSERVER.

DEVON AND EXETER GARDENERS' ASSOCIATION.

ON February 18th the lecturer at the meeting of the Devon and Exeter Gardeners' Association was Mr. Ebbutt, gardener to the Rev. A. W. Hamilton-Gell at Winslade. Mr. Ebbutt selected as the subject for his address the culture of the Violet. Illness prevented the author being present, and in his absence the paper was read by Mr. P. C. M. Veitch, who also presided. The paper was as follows:—

THE CULTURE OF THE VIOLET.

The history of the Violet (*Viola odorata*) goes back to time immemorial, and there is perhaps no hardy flower which remains with us so long, and is so highly appreciated as the cultivated varieties of single and double Violets for their refreshing perfume. There are very few gardens in which they are not to be found. Whatever may be the fashion in flowers, the taste for a bouquet of sweet Violets never varies; these humble flowers still hold their position and popularity.

The secret of success in the culture of Violets depends on the treatment they receive during the summer months, for to allow them to grow in thick masses in beds or in shady secluded positions will not produce the desired results. They may make free growth, and produce an abundance of leaves, which will only end in disappointment, but each individual crown must be sufficiently exposed to light, sun, and air to allow of them becoming plump and thoroughly matured by the autumn. The best of all positions I have found to grow them in is undoubtedly a piece of ground fully exposed in the centre of the kitchen garden. The great point in growing Violets, as in other garden operations, is to make a good start, and the most important matter is to prepare the ground suitably for their reception. For whether the plants are to be left in bloom where they are grown, or be lifted and transferred to frames, pots, or other structures, it is necessary that they have a moderately light, free, open soil, made firm before planting. I have invariably found that the greatest number of flowers are produced by plants grown on rather poor soil. Those grown on rich and deeply dug loose soils make much larger foliage, and bear finer, but fewer flowers. Therefore, and to make the various soils suitable for Violet culture, I would correct light soils by an application of lime and soot to kill the insects, and some decayed turfy soil from an old pasture, or failing this roadside parings, which contain gritty material. Make the ground firm before planting in heavy tenacious soils by a light application of leaf mould, roadside parings, old potting soil, lime, and soot to destroy the insects, indeed anything containing gritty material to keep the soil porous. These ingredients should be forked into the soil, and be well incorporated to the depth of from 4 to 6 inches, as Violets are surface rooters, and do not descend deeply into the soil.

Season for Planting.—I have found that the most suitable season for planting is during the latter part of March and April. I prefer the former month if plenty of bloom is required by the first week in August, inasmuch as Violets acutely feel the effects of dry, parching weather later on, and it is, therefore, absolutely necessary that the plants get thoroughly established, and have good root hold, by the time they are liable to be subjected to a hot sun and a dry parching atmosphere.

Position.—Having chosen the position, the ground must be marked off for the reception of the plants, which must be, for all the large single and double varieties, 12 inches from row to row, and 9 inches from plant to plant in the rows, except for the early Russian varieties, which may be 9 inches each way in the rows. The plants are chosen from the strongest runners, which the largest plants produce in quantities like Strawberries, the plants being inserted in the rows with the help of a dibber. The most suitable time to perform the operation of planting is when the weather is dull and showery, as then the plants quickly take hold of the soil in their new quarters. It is also a good plan, to get a start with young plants, to peg the runners down on the soil in the frames, so as to have them nicely rooted by the time the plants go out of flower, as they then grow away freely when planted out. Violets may also be raised from seed by carefully saving the best and well-ripened seed pods, but this method is not generally practised, except for raising new varieties. As the work of planting proceeds, the plants must receive a good watering to settle the soil round the plants. As soon as the work of planting is finished, a top-dressing of partly decomposed leaves, or hotbed manure, or spent Mushroom bed manure, is very beneficial to the plants, as it arrests evaporation and keeps the ground cool about them. Not only is the top-dressing beneficial in the way referred to, but it prevents the washing of the soil from subsequent waterings, which must be frequent during dry weather; it also keeps the plants clean during heavy rains, and it also prevents, in a measure, the attacks of red spider, and this is, indeed, the worst enemy the Violet has to contend with. Only a few days' dryness at the roots, with a fierce burning sun, will quickly bring on an attack of spider, and then it is questionable if it can be disposed of again that season. This is shown by yellow patches in the leaves, but the great point is to try and prevent its appearance, and this may be obviated, in a general way, by keeping the plants free from weeds, frequently stirring the surface of the soil, and a daily routine of sprinkling and thoroughly watering the plants during dry weather. The Violet revels in an abundance of water during growth, with a frequent application of weak manure water to keep the plants growing. Most varieties produce runners during growth, and the plants must be carefully denuded of these from time to time as they show themselves. There is not a doubt that growing Violets inside enclosed garden walls is attended with much more difficulty than where

more freely exposed, as in field culture, for then the plants can enjoy a far greater amount of air and the fresh summer breezes than those cultivated within the confined precincts of a walled enclosure.

Culture at the Foot of Walls.—This position is attended with more or less uncertainty according to the seasons. Generally, if Violets are planted at the foot of sunny walls (which is the best position for them during autumn and winter), and remain there the whole year round, they will be rendered useless by the attack of red spider. I would much rather grow the plants as indicated in an exposed position, and transfer them to the foot of walls during the latter part of August, and shelter them during inclement weather with reed or straw mats, which would amply repay the grower.

Culture in Cold Frames.—Wherever choice double Violets are grown, and these are the only varieties we grow in frames, it is of the highest importance that the position of the frames to receive the plants be duly considered, for it is indeed absolutely necessary that they get every ray of sunshine possible during early autumn and winter, and as these double varieties show unmistakably good or indifferent culture, the blooms will lack that beautiful symmetry and doubleness that they otherwise possess. Moreover, it is very easy to produce an abundance of bloom during the spring months, which is the Violet season; but it is from August to February that Violets are so highly esteemed. It then requires tact, and ability, and energy on the part of the grower to produce them. In mild winters double Violets will give a few pickings if garden frames are placed over them where they are grown, and the frames surrounded with hot manure and leaves about 2 feet wide and be carefully ventilated.

Culture on Hotbeds.—These beds are best made up by the first week in September, as then it gives the plants time to get re-established before cold nights approach. The hotbed is best made up of prepared manure and leaves, about half of each sort, the leaves being a great help in retaining the heat in the bed, which can be made up to any desired height. Linings will have to be frequently resorted to from time to time to keep up the necessary temperature. Although this is a very old practice, still some of the finest blooms of double Violets may be obtained by this method, the blooms being bright and well coloured, but not the large quantity of bloom can be gathered as by forcing them under more natural conditions, in a pit properly heated.

Culture by Hot Water.—I consider this the most natural of all methods for forcing the Violet during the winter months, producing atmospheric heat only. Moreover, there are other structures in which the Violet can be forced, as I have found they will readily force at any distance to 6 feet from the glass, providing they receive a maximum amount of light and be duly ventilated. It must be observed that in forcing the Violet anything approaching a forcing temperature must be entirely avoided, as the Violet is very impatient of artificial warmth, and if continued will result in the flowers becoming poor in colour and devoid of that rich refreshing perfume that they otherwise possess. I would also advise growers not to apply manure water of any kind to the plants during the blooming season in the frames, as it is sure to leave behind it an offensive odour, even on the buds, and is still retained after the blooms are fully expanded. One of the greatest enemies to Violets in frames is damp, but this can be reduced to a minimum where hot water is employed and judicious ventilation during all favourable weather, strict attention to cleanliness and keeping all weeds and decayed leaves removed. Another enemy is fog. This must be entirely expelled, if possible, by covering the lights closely with straw, mats, or anything at hand, as it will make its presence felt even in well-heated pits.

The following are the varieties I have grown—viz.,

Single Varieties.—The Blue and White Russian.—These are early and very sweet scented, but unfortunately produce very short stems to the flowers, which is not desirable.

Wellsiana (large blue).—This I consider to be the best variety for all purposes, being a most profuse bloomer, and not so strong a grower as the "Giant" and the "Czar," but far superior for private or market use.

Double Varieties.—Neapolitan (colour pale lavender).—A very fine old variety, still one of the very best. Very sweet and delicately scented, but rather a tender variety, and requires a lighter soil than the other doubles. It is very susceptible to damp.

Comte de Brazza (double white).—The best white in this class. It requires good culture, otherwise the flowers produce a green eye and come deformed.

Marie Louise (deep blue).—The best and finest variety of this class, being a good grower and a great favourite with private and market growers.

De Parme (a beautiful lavender colour).—An extremely free flowering and very compact grower. It does not produce runners like the other double varieties; the very best for pot culture, and the finest of all for frame culture and for market. It produces more blooms in a given space than any other variety I am acquainted with. I consider those enumerated the best varieties for general use.

To illustrate the leading kinds now grown in the principal gardens in the country, as well as for market purposes, bunches of cut Violets and some plants in pots were shown. The Neapolitan Violet was represented by Miss Mantoni, a very dwarf-growing, double-flowered plant of a bright violet shade; Marie Louise, a dark violet coloured double; Comte de Brazza, a fine double white; and The Queen, a new double white, with a very large flower. These were all sent by Mr. Veitch. The Miss Mantoni was much recommended on account of its

free flowering and compact habit of growth, and the further advantage that it does not throw out runners. The Hon. Mrs. Boscawen also sent some very fine blooms of Violets for comparison. A discussion followed the reading of the paper, Messrs. J. Weeks, T. E. Bartlett, G. B. Carlile, J. McCormick, Tucker (Ebford), and the Chairman giving their experiences of different methods of treatment. The usual votes of thanks terminated the meeting.

SPRAYED FRUIT.

AT its recent meeting the Western New York Horticultural Society appointed a Committee to prepare an article for publication on the healthfulness of fruit sprayed, while in process of growth, with certain solutions. The object of the publication is to combat, as far as possible, the evil effects of the scare created by the New York Board of Health last summer, which has been used by foreign producers to create a prejudice against American fruits abroad, so skillfully that the export trade of the United States in even dried and canned fruit is likely to be seriously affected. Below is given the paper prepared by the Committee.

"At the thirty-seventh meeting of the Western New York Horticultural Society held in Rochester recently the action of the New York Board of Health in the seizure and condemnation of sprayed Grapes was discussed at some length.

"D. G. Fairchild of the United States Department of Agriculture, who visited the Hudson River region in company with the Assistant Chemist of the Board of Health shortly after the 'scare' of last September, read a paper bearing directly upon the subject. While the object of the paper was to show the absolute harmlessness of the minute quantities of copper found upon sprayed Grapes, the hasty action of the Board of Health was incidentally criticised as showing plainly a lack of due deliberation and lack of appreciation of the injury to fruit growers such a hasty action might produce.

"The paper presented was an exposition of the latest opinions and results of experiments in Germany, France, Italy, and America bearing upon the question of the poisonous nature of small quantities of copper when absorbed with foods. Among other noteworthy matters were mentioned the presence of copper in waters of mineral springs in all primordial rocks and soils derived from them, in many plants growing upon such soils, in several of the common food stuffs, especially in beef's liver, which, according to recent investigations, contains from eight to nine times the quantity present on sprayed Grapes, and finally in the ash of Grapes which have never been treated by any of the copper mixtures. These results lead to the conclusion that the poisonous nature of small quantities of copper has been greatly exaggerated, and, not only not proven, but denied by eminent authority whose denials are supported by a large amount of valuable evidence, and further that the extremely inconsiderable amounts of copper in the shape of an insoluble salt upon the stems and pedicels of the Grape cannot possibly be injurious to the health of the consumer, falling as it does below the amount present in many of the ordinary food stuffs eaten with impunity.

"The analysis made at the Department of Agriculture of Grapes sent from the Hudson River district will appear in a forthcoming bulletin, but the maximum amount of copper found present did not exceed one-fifth of a grain per pound of fruit.

"The report upon analyses made at the New York experiment station, of Grapes gathered by Dr. E. J. Lederlie, of the Board of Health and Mr. Fairchild, in the latter part of September, was given by Dr. L. L. Van Slyke, chemist of the New York Agricultural experiment station, and is of especial interest, as the samples submitted were from vineyards from which the condemned Grapes came and were the worst sprayed bunches obtainable from these vineyards.

"On account of the unusual importance of these analyses as bearing directly upon the question, we give more fully the general results.

"In some instances the copper compounds could be seen upon the berries, but it could be seen to be more plentiful upon the stems. The berries were separated from the stems, and the amount of copper determined separately on each. The analyses were made by Dr. Van Slyke and his first assistant, C. G. Jenter. The results may be summarised as follows:—

"First. The amount of copper, calculated as metallic copper, found on the berries, was very constant in the different samples, averaging 1-120th of a grain for each pound of fruit (berries and stems).

"The amount of copper calculated as metallic copper found on the stems varied from 1-90th to 1-14th of a grain for each pound of fruit (berries and stems), and averaged 1-30th of a grain.

"Second. If the copper were on the berries in the form of sulphate of copper, each pound of berries would contain about 1-30th of a grain of copper sulphate. When copper sulphate is prescribed by physicians as a tonic or astringent, the dose is from $\frac{1}{4}$ to 2 grains. Hence if a person were to eat and swallow the Grape skins as well as the pulp of the fruit, it would be necessary to eat from $7\frac{1}{2}$ lbs. to 30 lbs. of Grapes, skins and all, in order to get a tonic dose of copper sulphate. Or, if one were to eat berries and stems, they would need to eat from 2 to 8 lbs. to get a tonic dose of copper sulphate.

"To get an amount of copper that would be regarded as serious, one would need to eat 3000 lbs. of Grapes, skin and all, and it is safe to say that if an attempt were made to get a dangerous dose of copper into the body in this way in a short time a person would be in a dangerous condition many times from the Grapes alone before running any risk from the copper.

"Third. As a matter of fact, copper when found upon sprayed Grapes in New York State exists not in the form of a sulphate, but in the form of carbonate or hydroxide, both of which forms are not readily soluble, and which would, therefore, be even less dangerous than if present in the form of sulphate of copper. Most of the copper found was on the stems which people do not eat, and the rest of the copper was on the skin of the berries, which most people do not eat.

"Fourth. The results obtained from analysing the Grapes, which were selected as being the worst that could be found, therefore seem to justify the assertion that it is simply an absolute impossibility for a person to get enough copper from eating Grapes to exercise upon the health any injurious effect whatever."—(*Rochester (N.Y.) Chronicle.*)

PEAR NOUVELLE FULVIE.

THIS variety hardly receives enough attention in the current literature pertaining to a fruit on which so much, yet not too much, is written, for the Pear is beyond question the most important of all hardy dessert

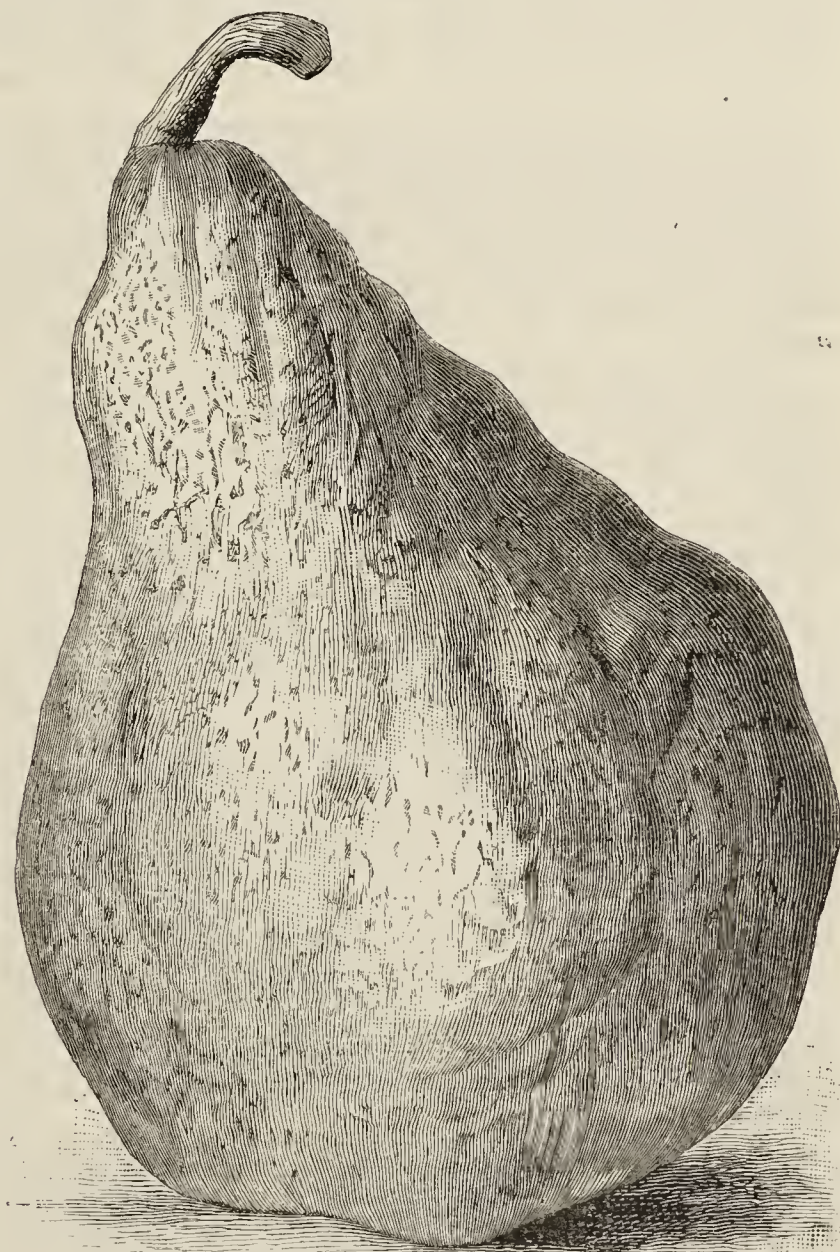


FIG. 28.—PEAR NOUVELLE FULVIE.

fruits. Although Nouvelle Fulvie is not one of the most handsome of Pears, it is nevertheless one of the best of its season, February—March. We have fruit of it ripe now, and it is of delicious quality. Like most other late Pears the trees need the shelter of walls; it is only in the southern counties that satisfactory fruit is produced on trees in the open garden. A Pear of such excellence is worthy of a place amongst late Pears, and hence we give it more prominence than it has hitherto received.

The following is a description of this good Pear:—Fruit medium-sized, pyriform. Skin green, changing to yellow, and thickly dotted all over with russet; when fully exposed and in a warm climate it has a red crimson cheek, which is bright when the fruit is at maturity. Eye half open, with dry horny segments, rather deeply set. Stalk about three-quarters of an inch long, occasionally fleshy, and united to the fruit by some fleshy folds. Flesh fine-grained, melting, very juicy, with a rich and exquisite flavour. It was raised by M. Grégoire, of Jodoigne, in Belgium, in 1854, and named by him after one of the members of his family. Our figure has been engraved from a characteristic sketch by Miss May Rivers, of Sawbridgeworth.



FRUIT FORCING.

VINES.—*Earliest Forced Pot Vines.*—Those started last November have the Grapes in the last stages of swelling, and must be adequately supported with liquid manure and rich surface dressings, while if the roots extend beyond the pots feed them there as well as in the pots. The very early varieties, such as White Frontignan, Foster's Seedling, Black Hamburgh, and Madresfield Court, are well advanced towards ripening, and will only need clean tepid water after the colour is well pronounced. A circulation of warm moderately dry air conduces to the flavour of the fruit, but the Vines must not lack the needful supplies of water to keep the foliage fresh, nor the atmosphere be allowed to become so parched as to invite red spider, for the Grapes require some little time to mature after apparently ripe, and a moderate amount of atmospheric moisture without stagnation is essential to their remaining plump and fresh until cut.

Vine Eyes.—These having been inserted as before advised are now well rooted, and should be potted singly, or if inserted in small pots they must be shifted into 6-inch pots as soon as the roots reach the sides of the smaller, placing them in bottom heat, or preferably on shelves over the hot-water pipes. Syringe well amongst them, and pinch the laterals at the first leaf, unless they are intended to be planted out this season and not fruited the next, when the laterals should be left entire, but in that case the Vines must be planted out before the roots become matted.

Cut-back Vines.—For fruiting in pots next season these Vines will now be fit for shaking out and repotting, or if that has already been done and the roots have reached the sides of the pots they will need shifting into the fruiting—12-inch—pots. If they have been given bottom heat they should be returned to it for a time, 75° to 80° being sufficient, otherwise bottom heat is not necessary, yet the pots are better stood on slates over hot-water pipes than on a cool bottom. Keep the house close and moderately moist until they become established. Train the canes near the glass, pinching the laterals to one leaf, and thus secure solidified growth and plump buds. Use clean pots, and efficient drainage. Turfy loam with a fifth of old mortar rubbish answers well for potting, but a quart of steamed bonemeal and soot, and double the quantity of wood ashes, may be mixed with every bushel of loam.

Early House.—Vines started early in December and previously forced will soon have the Grapes stoned, and should have copious supplies of tepid liquid manure. A light mulching of lumpy, partially decayed manure may be placed on the border, as the Grapes swell considerably in the later stages, even after commencing to colour, and allow a little lateral extension, as every leaf encourages root action, and that leaf duly exposed to light and air aids the Grapes in swelling and finishing. The Vines started later in the year, and of which the Grapes have been thinned, will need liquid manure applied to inside borders; but surface dressings are more potent in accelerating and keeping surface roots, and a good handful of almost any of the advertised fertilisers per square yard makes a wonderful difference in the colour of the foliage, which means ultimate good colour and high finish in the Grapes.

Ventilation needs to be carefully attended to, as with sharp north-east winds and bright gleams of sun the temperature is subject to sudden alternations, which must be avoided by admitting air in small quantities at a time, always in advance of rather than after a great rise of temperature, taking care to allow a good rise from sun heat after closing early in the afternoon at 80° to 85°, allowing the house to fall to 65° at night, or even 60° when very cold.

Vines started in January and not forced before have pushed slowly, and some that have started freely show a tendency in the bunches to twirl and twist, whilst others are "blind." This may be a consequence of last year's cold sunless weather, resulting in unripe wood and imperfectly formed embryonic Grapes. Nothing can be done now, but a slight increase of temperature and a reduced supply of moisture for a few days may be beneficial. Avoid the close stopping system until every part of the trellis is well covered with foliage, then allow no more than there is room for. Vines started with the year will be in flower, and should have a rather drier atmosphere with a gentle circulation of air and a temperature of 65° to 70° at night and 70° to 75° by day artificially, with 10° rise from sun heat, maintaining moderate moisture by damping the house two or three times a day in bright weather. Muscats should have at least 5° higher temperature, and the flowers must be carefully fertilised.

Succession Houses.—Disbud and secure the growths as they advance, stopping them two joints beyond the bunches where the space is limited, but where there is room allow a greater extension of the shoots before stopping. Remove the laterals from the joints below the show of fruit, except from the two base leaves, stopping those at the first leaf, and to one afterwards as produced. The laterals above the fruit may be allowed to make such growth as can have exposure to light without crowding, and then be stopped, keeping them pinched afterwards, as

well as in the case of those not having room for extension. Remove all superfluous and ill-formed bunches of the free-setting varieties as soon as those that are the most promising for the crop can be selected. Maintain the borders in a proper state of moisture, and secure a genial atmosphere by damping the house well at closing time as well as in the morning and evening. A temperature of 60° to 65° at night is suitable after the Vines come into leaf, allowing 65° to 70° on dull days, and 75° to 85° with sun and ventilation, taking care to ventilate early, to avoid cold draughts, and to close early.

Late Houses.—Vines intended to afford ripe Grapes in August onward must now be started, and Muscats, with other varieties, should be encouraged to move, as the fruit keeps much better when ripened in August or early in September than when the season is more advanced at the ripening period. Vines which have only been recently pruned should be given a little rest before starting them, yet all thick-skinned Grapes should be started not later than early April, for they take a long time to ripen properly for keeping, and should be assisted all along with fire heat, as upon their thorough ripening depends their keeping sound. Inside borders may be brought into a thorough state of moisture by the application of water at a temperature of 80°, and if followed by an application of rather thick but not too strong liquid manure it will incite root activity as well as nourish the Vines. Outside borders will only need a little partially decayed manure as a mulch to protect the roots from chill by frost or snow. The atmosphere must be kept genial, damping the rods and every available surface two or three times a day, maintaining a temperature of 50° at night or 55° when mild, and 65° by day with sun. Late Hamburgh houses may be kept cool, not starting the Vines until next month—indeed, they may start naturally. It will suffice if they have the fruit set by early June, and the Grapes are ripe in September.

PEACHES AND NECTARINES.—*Earliest Forced House.*—Alexander and other very early varieties will soon have completed the stoning, and will advance rapidly to ripening if duly supplied with nourishment and the trees are not over-burdened with fruit. The fruit swells and ripens well enough under the same conditions as are required by the older forcing varieties whilst stoning. The temperature then requires to be kept as equable as possible, too high a night temperature being unfavourable to the fruit, and cold draughts in the daytime often giving a check that causes the fruit to fall. This must be avoided by judicious early ventilation made up for by closing early in the afternoon; but cutting winds are so pernicious as to bring off the fruit wholesale, and drying the atmosphere by over-fumigation is equally disastrous. Continue the temperature at 60° to 65° at night, and 70° to 75° through the day, syringing morning and afternoon to keep red spider in subjection; but promptly eradicate it by an insecticide if it gain a footing. Thin the fruit directly the stoning is effected to the number wanted for the crop. It is not wise to let the trees stone twice as many fruits as are required, and it often happens that leaving too many brings off the major portion. One fruit to a foot of trellis is ample. Nectarines may be left a little closer. Tie the shoots to the trellis as they advance, and stop any growing too long at 12 to 15 inches, pinching laterals to one leaf, and, above all things, avoid overcrowding. Shoots retained to attract the sap to the fruit should be closely pinched to one leaf unless the trees are weak and it is desirable to encourage root action by a little extension, yet allow none beyond what there is room for.

Succession Houses.—Disbudding and tying-in must be attended to before the growths become too long, disbudding gradually. If the blossoms have set thickly—more than a dozen on a foot length of shoot—thin them soon after the remainder of the blossoms are cast, removing the smallest fruits, those on the under side of the branches, and those badly placed, leaving three to five of the best. These in turn should be reduced to two or three when the size of marbles, and finally to one or two, the latter only in case of there being a deficiency in other parts of the tree; this thinning taking place when the fruit is the size of Walnuts. The temperature may then be raised to 55° to 60° at night, and 60° to 65° by day from fire heat, ventilating from 65°, and insuring 75° from sun heat, closing moderately early in the afternoon, but avoiding a close atmosphere.

Late Houses.—Those having the lights off have the buds quite dormant, and the lights need not be replaced until the buds are commencing to swell freely. Trees under fixed roofs have the buds well advanced for expansion, and will need an occasional syringing until the stamens appear, when the floors and borders may be damped in the morning and afternoon, leaving a little air on constantly, and employing fire heat only to exclude frost. After the flowers open maintain a night temperature of 40° to 45°, 50° by day in dull weather, 5° more when mild, with a free circulation of air, advancing to 65° with sun. Where the blossom is superabundant it will be advisable, especially in the case of weakly trees, to remove the flowers from the under side or back of the shoots, as the trees may be against front or back trellises. The borders must not lack moisture, affording thorough supplies where needed, repeating, if necessary, so as to bring them into a healthy state.

THE KITCHEN GARDEN.

KIDNEY BEANS.—In order to maintain a constant supply of these fresh batches of plants must be following in close succession, from twenty-five to forty pots being sown every ten days or thereabouts. Shelves and front stages will soon be too hot and dry for these crops, Beans succeeding better on a moist bottom, and where they can be kept easily supplied with plenty of water. From first to last there must be no neglect. Thin-out the plants freely and

early, stake before they fall about, never let them become very dry at the roots, feed them well, syringe freely in hot weather, gather the beans directly they are large enough, and if not unduly crowded the crops ought to be heavy and continuous. Where long, narrow, and deep boxes can be had these are better than pots for Beans during the rest of the forcing season. If these are about a yard long, 9 inches across, and 9 inches deep, six of them will be enough in most cases for one batch. Beans growing in boxes are not so liable to be injuriously affected by excessive heat, or to be so much infested by red spider as are those in pots.

TOMATOES.—On no account ought young plants to be long kept in small pots. Directly they become badly root-bound their sturdy healthy appearance is soon changed to a spindly sickly yellow condition, from which they are not quickly recovered. Those early placed in 5-inch or rather larger pots, and kept near the glass in heat, ought now to be fine strong plants, and quite ready for their fruiting quarters, while any that are in small pots should either be given a liberal shift or planted out in boxes, ridges, or beds of soil where they are to fruit. Single plants produce good crops in 12-inch pots, or better than can often be had from two plants in 15-inch sizes; drain these lightly, use a rough loamy compost, consisting say of two parts fibrous loam to one of horse droppings or old Mushroom bed refuse, and pot deeply so as to leave good room for top-dressings, and firmly. Set the pots either along the front of the house or on a high back shelf near to the glass in a three-quarter span-roofed house, and train up the roof. They will also succeed admirably arranged on prominent walls of inside pits or the stages in forcing houses, in this instance being supported by strong stakes. A narrow ridge of soil along the front or the sides of a forcing house will support a row of plants put out 1 foot apart and trained straight up the roof. Pack the soil firmly about the roots, and water somewhat sparingly at first. All plants in pots and those put out thickly should be kept confined to a single stem, side shoots being pinched out as fast as they form; but if preferred one or two plants may be made to cover a roof, shoots being laid in wherever there is good room for them. Thus treated they frequently crop very heavily. More plants being wanted for later houses and pits sow seed at once thinly in 6-inch pots, and place in brisk heat to germinate.

POTATOES.—If these are forced steps must be taken to keep up a steady yet unbroken supply, and, in any case, something should be done to forward a few for use in advance of any that can be obtained in the open. Much may be done with the aid of rough unglazed frames on very slight hotbeds, and still more with others having glazed lights. The former, however, may be of considerable dimensions, and, having plenty of rafters, old carpets, mats, or canvas covers may be rolled on every night and off in the morning. Place a little short manure over the heating material, and on this not less than 9 inches of fine light soil. Open drills 15 inches apart, and plant well sprouted sets, such as were figured on page 173 last week, 8 inches apart. A pinch of Radish seed may be sown with Potatoes, thin sowing being the surest way of having both good. Potatoes may also be forwarded considerably at the foot of south walls and on warm borders. They require a well-worked and rather light soil, and pay well for being protected with benders and mats from spring frosts. Short-topped early varieties, and no others, should be planted 8 inches apart, in drills 20 inches apart. The bulk of early Potatoes ought not to be planted before April, but if the weather and state of the ground admit of the work being done properly, there is nothing to prevent and much to be said in favour of pushing on the work of planting the late varieties.

CARROTS—Successional crops, or what in some cases may be the earliest supply of tender young Carrots, may be had without the aid of glass and far in advance of any sown on warm borders, by preparing a fairly large and deep hotbed in a sheltered spot, on this enclosing 6 inches or rather more of fine light soil by means of boards on edge and strong stakes. Either sow the seed thinly broadcast and cover with sifted soil, or else in shallow drills drawn 8 inches apart. With the former, and midway between the latter, sow Radish seed, also thinly, and these will be ready for use long before the Carrots require all the space. The little French Forcing Horn Carrot is the first fit for use, and is of excellent quality, but the Nantes Horn may be drawn and used when quite small, and if a few are left thinly all over the bed, and not neglected in dry weather, they will attain a comparatively large size, and be of good form and colour, or just what are wanted for the July and early August shows.

MIXED OR SPRING BEDS.—Where house room and frames are scarce the good old plan of raising a variety of plants for the kitchen garden, as well as Carrots, Radishes, Mustard and Cress, has much to commend it. Form a level heap, say 12 feet by 6 feet, and 3 feet or rather more in depth of good heating material, and otherwise prepare much as advised for Carrots in the preceding paragraph. If tall stout stakes are used for keeping the boards together, these may be further strengthened with cross poles, and will then support treble fish nets well clear of the beds. Mats may also be used for covering during frosty nights, though, as a rule, the fish nets are sufficient protection, these also being necessary for keeping away the birds. Sow about one half of the bed with Carrots and Radishes, and patches each of Red and White Celery, Lettuces, Cauliflowers, Brussels Sprouts, and Cabbage, the latter only if badly wanted. Mustard should be sown thickly, and very lightly covered, and Cress also thickly, pressing this into the soil only. In all other cases thin sowing is imperative, otherwise few or no serviceable plants or roots will be had. Early in May sow two patches of Vegetable Marrow seed not far from the centre of the bed, the plants being eventually

reduced to about four in number and allowed to ramble and fruit in all directions, these alone paying for the heating material or manure.

SHALLOTS, GARLIC, AND UNDERGROUND ONIONS.—There should be no further delay in planting these. Select a well prepared border, those about thinly planted pyramid Apple and Pear trees answering well, fine this down, and stir in a good dressing of soot. Small divisions, or "cloves," develop into large "bulbs," while if the latter are planted they split up during the season. Some of each should, therefore, be put out each season. The rows in every case should be 12 inches apart, the Garlic being planted firmly to their full depth 6 inches apart, Shallots 9 inches, and the Onions 12 inches apart in the rows, the two latter being only half buried. Parsley should be sown, or, better still, planted later on midway between the roots, the latter being cleared off long before the Parsley will require all the space.

THE BEE-KEEPER.

ACCURACY ON BEE MATTERS—PUNICS.

IN the *Journal of Horticulture* for February 18th "A. L. B. K." refers to a statement of the Editors of the "B. B. J." on December 17th, credited to Frank Benton, in which he says of Tunisian bees—"But unlike Cyprians and Syrians, they are liable at times to fly at one and sting him when he approaches the apiary and yet does not molest the hives." Our Lanarkshire friend thinks this statement should not pass unchallenged; but if he expects me to correct all the statements that he or I may deem inaccurate as published by Messrs. Cowan and Carr, I should really have little time for anything else. As, however, the article of December 17th, 1891, on Tunisian bees is being copied into all the American bee papers, and as silence on my part might probably lead the Editors of these journals to consider the statements correct, I think, under the circumstances, I had better notice the matter; but should they after this quote anything written by the Editors of the "B. B. J." as being correct, they must accept the consequences of quoting people who omit to take steps to verify what they say.

In the first place, the article refers to what Mr. W. F. Kirby, Curator in the British Museum, said before the Entomological Society. The article implies that the writer was present at the meeting. As a matter of fact neither of the Editors was present, and the only accurate statement it contains is embodied in the first sentence—viz., that Mr. Kirby exhibited at a meeting of the Entomological Society a series of dark coloured *Apis* reared by me from bees imported from Tunis. What Mr. Kirby actually did say is published in print in the Transactions of the Entomological Society, from which they could have quoted him had they wished.

Mr. Kirby recommended that the name "Punic bees" should be retained, as being a very appropriate one. They are labelled "Punic bees" in the British Museum, and as all authorities of any note—including such a high one as Mr. Kirby—favour the name "Punic," and they have been exclusively known by this name for five years, I am afraid Mr. Cowan will have a difficulty to alter it.

Respecting the paragraph quoted by "A. L. B. K.," this appeared originally in Benton's "Bees," and was reprinted in "B. B. J." for, I think, April 15th, 1885; also "A. B. J." for April 29th, 1885. When Benton saw them for, I think, three weeks in their own country they were swarming, and I have never said they would not sting when the swarming season was on. Moreover, it is not correct to say that Cyprians and Syrians will not fly at one and sting him when he approaches the apiary, for when working on Limes both of these races, and particularly if crossed with Italian blood, are liable to literally swarm on a person who goes near their hives (each one trying to sting), which Punic bees will not attempt to do.

Benton has always insisted that Cyprian bees were the best in the world, and that Syrians were but little behind them, and as most people now know that they are not, I think most will dismiss him as an authority on which is the best race of bees. He seemed, from some reason, to have taken a deep prejudice to the bees of Tunis; but he says in the article alluded to, "A medium colony transferred on the last day of February produced over 40 lbs. of extracted honey, besides building out several frames of foundation in twenty days." And further on he says, "On the whole, Tunisian bees are not to be despised, even if they are true Africans in colour." I have private letters of his written from Tunis early in February, the year following, in which he speaks of stocks in forty frames—about standard Woodbury size—with twenty containing brood, fourteen frames being solid brood. Benton quotes the Rosemary as being the principal source for honey, which blooms during January, February, and March; yet

Mr. Cowan, after just referring to this article, wrote to you, sir, also to the *American Bee Journal*, and then printed in his own Journals on December 24th, "That the seasons in North Africa, as in all places north of the equator, are at the same period of the year as ours," and that my statement, "that their natural months for rest (for Punic) is our summer, which is their winter," was false. Surely he must know it is "winter" here in January, February, and March; yet in Tunis these are the months for swarming and honey gathering. After March bees cease to either breed or collect honey for six months, consequently it is their "winter"—i.e., the season they can get nothing, and in which they have to live on what they had stored.

As Mr. Cowan considers Benton such a good authority, allow me to draw attention to another matter, where speaking of Alley's golden Carniolans on November 19th, 1891, page 525, he says, "No one in Europe, at any rate, has ever seen or heard of pure Carniolans being yellow, and to suppose that in so short a time pure Carniolans can be turned into pure golden Carniolans is a pill too large for us to swallow."

If we turn to the "B. B. J." for August 23rd, 1888, page 413, Mr. Frank Benton, writing from Carniola, where he was breeding and exporting these bees, says:—

"I have yet to see an apiary in Carniola where yellow banded bees do not exist, although I have visited all the most important apiaries existing here. There is in the race a tinge of yellow blood that crops out every now and then, do the best one may." "There were at my residence to-day two intelligent bee-keepers from the northern parts of Carniola, and I questioned them on this point, and they replied that an occasional tendency towards orange or rusty red bands was always the case with all Carniolans, but that it was no mark of impurity in the race, since it exists so all over Carniola." Again, in "B. B. J." for September 20th, page 465, he further says, "Be it then well understood that yellow bands existed among Carniola bees in Carniola before I ever crossed the Atlantic. . . . There is in my mind no doubt but that this peculiarity has existed for many decades, and I venture even to say for centuries. . . . Mr. Ambrozic told me personally but three days since that yellow-banded Carniolans exist in his portion of the province, and but recently a bee-keeper said to me 'his father recommended yellow-banded bees as the best strain.'"

The Mr. Ambrozic quoted is a noted breeder of Carniolan queens. When this was printed in the "B. B. J.," a great controversy was on respecting whether bees with yellow bands existed in Carniola. Mr. Cowan was the Editor, and had to have his say. From the autumn of 1888 to that of 1891 is only three years, yet with these in his own journal he thinks it correct to say, "No one in Europe, at any rate, has ever seen or heard of pure Carniolans being yellow." He had forgotten a very important matter that was in his knowledge only three years ago, and which he could have found on reference to the indexes. I fail to see how any persons can place any reliance on what he has said as indicated, or expect to be regarded, if they do, as other than "birds of a feather," see editorial in "B. B. J." for February 11th, 1892, page 54, in which they say under this head, "The company men keep shows what men are." *Verbum sap.*—A HALLAMSHIRE BEE-KEEPER.



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post and we do not undertake to return rejected communications.

Vines Bleeding (D. D.).—Take a hot iron and scorch the points of the canes, then daub them with red or white lead as soon as it is done. Some persons have found powdered alum useful. A little oozing will do no harm, but a free flowing will weaken the Vines. As soon as the leaves develop they will take up all the sap.

Pit for Growing Primulas, Carnations, &c. (J. K.).—Pits are better than houses for the growth of dwarf plants, because they are low and the plants nearer the glass; but most so-called pits are really houses partly sunk in the ground, and have no side lights, merely a glass roof, with a pathway up the centre, and a bed on each side covered with a good coating of ashes, on which the pots are stood, the necessary heat being furnished by hot-water pipes placed at the sides. If these are the pits to which you allude well and good, but if you mean a lean-to and no pathway inside then there is no comparison between the two, for the plants cannot have their requirements attended to in severe weather, which is a great drawback.

Raising Crab and Paradise Stocks from Cuttings (Idem).—This is a very undesirable and unnecessary mode of propagation, as Crab stocks are easily raised from pips or seeds, and Paradise stocks are had in half the time and much better by layering than from cuttings, which do not strike very freely without a heel. They will root in the open ground, but will do so more certainly under a handlight.

Stocks for Budding by a Given Time (Idem).—Well rooted fruit tree stocks planted in the coming autumn will be available for budding in the July following, and it is not wise to wait until the spring after that for grafting them, as by budding in July the stocks unsuccessfully budded can be grafted the spring following, thus making success doubly sure, and, if a novice, gaining experience. With respect to the address of the paper, where, of course, editorial communications should be sent, you will find it printed at the foot of the back page in every issue.

Sewage for Potatoes (Doubtful).—You may safely give the well drained ground, previously to digging, a heavy soaking with the contents of your cesspool; and if the plants during their early growth seem weakly, pour another good soaking between the rows, and repeat it after a fortnight if apparently needed. In a poor soil we should prefer this treatment to a heavy application of stable manure. If your fruit trees are vigorous they need no liquid or any other manure.

Lilium lancifolium rubrum Culture (W. H.).—A 6 or 7-inch pot will do for a strong bulb of this Lilium. Drain the pot well, and on that place some rough peat and loam, filling the pot about half full. On this set the bulbs, and just cover all except the point, and then set the pots on the floor under your stage, and give little water until the stem begins to move; then bring them into the light, and earth up as the stem grows. After the end of May a sheltered place out of doors will suit them as well as the greenhouse or cold pit. When growing freely they require plenty of water.

Protective Material for Cold Frames (Subscriber).—The cheapest and best coverings for excluding frost from cold frames during winter are heavy St. Petersburg mats, with an extra covering of dry straw in very severe weather. Straw alone is effectual, but entails much labour in putting on and taking off, besides causing considerable litter, as to be objectionable; and straw or reed mats, though very serviceable and not costly when home made, require care in using and keeping dry. Frigidomo is costly, and dry hair felts are very little use after they become wet, therefore we prefer the old fashioned mats, and these, if properly taken care of are economical in the end as compared with strawy material unless the latter costs nothing.

Phillyrea Flowers and Cedar of Lebanon Coning (J. N. S. C.).—The Phillyreas do not flower in many parts of this country because the climate is too cold, but in favourable positions, where the wood becomes well ripened, they flower freely enough. The non-flowering is probably due to the unripeness of the wood more than to the age of the shrub, grafted ones being, as a rule, the most free. Cedrus Libani produces cones freely in many instances, whilst other trees of the same age do not produce any, though only growing a few yards apart. The cones being produced on the upper side of the branches often escape observation. It is not until the trees become aged that they bear cones, and these rarely contain fertile seeds.

Pruning Pyramid Apple Trees (J. Mills).—The trees should not be cut-in quite so closely as last season; close pruning in winter invariably produces an abundance of unfruitful young shoots. Were you to shorten the branches closely again you would aggravate the evil you wish to avoid. Prune the trees at once into the pyramid form. On some of them the young wood will be more thickly placed than it is on others; the shoots nearest the base of these should be cut back to two-thirds of their length, gradually cutting-in closer as you near the apex of the tree so as to insure the desired shape. The trees that have fewer branches should be cut rather more closely. We also advise you to practise summer pruning, which is the best method of inducing fruitfulness.

Size of Pots at Flower Shows (Hon. Sec.).—There is no settled rule among horticultural societies as to the size of pots in which plants shall be exhibited. It would generally militate at first against the success of an exhibition if the size of pots all over were to be individually of so many inches in diameter; but if the size of pots were restricted to 8 inches in the case of some plants, as Cinerarias, Calceolarias, Pelargoniums, &c., it would be a better test of the relative skill of the exhibitors, and also render it easier for the judges to decide as to the merits. We recollect being a little in doubt as to Cinerarias in 7-inch pots, and great bushes in 14-inch pots, but on moving the moss garnishing we found three plants in the large pots, so that the exhibitor showed eighteen instead of six plants. In a small country flower show it would not be wise to restrict too much, but the majority of the members must decide.

Cobœa scandens and Clematis Jackmanni Flowers (J. F.).—The flowers of *Cobœa scandens* are easily fertilised by applying the pollen of the anthers to the stigmas, but the plants are generally grown too cool and in too little light to render the fructifying organs perfect, the plants needing a much drier and warmer atmosphere to produce seeds satisfactorily. *Clematis Jackmanni* for a similar reason does not produce perfect seeds, the plants not ripening pollen, though many flowers set freely, but the seeds are imperfect, because the summers are too short to ripen them, and to secure seeds plants require to be grown specially for that purpose and carefully fertilised under glass.

Fertilisation (A.).—You either did not clearly understand the lecturer, or he was inaccurate in some of his statements. Dew is not essential for the adherence of pollen to the stigma, as it is rendered viscid by a natural secretion in the daytime, and it is then, and not at night, that bees convey pollen from flower to flower, while, as you correctly state, fertilisation by manipulation is always effected in the daytime, when the pollen is dry. The germinal tube from the pollen grain penetrates between the cells through the style, much in the same way that the root (radicle) from a seed penetrates the soil, forcing its way through the interstices, the cuticle of the seed usually being forced above ground, and similarly what may be termed the shell of the pollen grain remains on the stigma and shrivels. The grains are not transmitted through the style, but only a cellular elongation of or from them, and it is the action of this on the ovules that perfects the seed and influences the progeny from it.

Striking Pelargoniums from Eyes (Mason).—Certainly these plants can be raised from leaves with the eye attached, or, in other words, from eyes. Take the cuttings from the plant, cut transversely below the lowest leaf, and then, placing the knife about half an inch above the eye, cut the stalk in a sloping direction towards the base of the shoot. The large leaves only are available for forming leaf cuttings. The extremities of the shoots should be inserted, like ordinary cuttings, with one joint in the soil, and the growing point above. The cuttings being made as described, drain the cutting pots effectually, and fill them to within half an inch of the rim with sandy loam, leaf mould, and silver sand in equal parts. A little silver sand is then placed in the pot, a quarter of an inch or so, and the cuttings inserted about half an inch deep, each leaf being tied to a small stick, with matting round the footstalk, to maintain it in an erect position. A slight watering is then given, and the pots plunged in a bottom heat of 75°, a top heat of 60° or 70° being afforded. The frame having a moist atmosphere, there is little necessity to water; none should be given so long as the soil remains moist, and the less water needed the better, as the great evil is the liability of the footstalk of the leaf to decay, and the consequent destruction of the eye before a callus is formed. Shade is given for a few days, until the leaves are able to bear the sun; and in this position they remain until the shoot from the eye appears, when they are gradually hardened off, and finally potted singly in small pots.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (Gifford).—1, *Phajus Wallichii*; 2, *Cœlogyne flaccida*; 3, *Ixora alba*; 4, *Peperomia arifolia*; 5, *Begonia fragrans*; 6, *Begonia nitida*.

COVENT GARDEN MARKET.—MARCH 9TH.

BUSINESS still quiet, with supplies of hothouse goods shorter.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 0	to 4 0	Grapes, per lb.	1 9	to 3 6
Apples, Canada and Nova Scotia, per barrel ..	12 0	25 0	Lemons, case	15 0	2 0
Cobs, Kent, per 100 lbs. ..	0 0	45 0	Oranges, per 100	4 0	9 0
			St. Michael Pines, each ..	3 0	6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	0 9	to 2 0	Mustard and Cress, punnet	0 2	to 0 0
Beet, Red, dozen	1 0	0 0	Onions, bunch	0 3	0 5
Carrots, bunch	0 4	0 0	Parsley, dozen bunches ..	2 0	3 0
Cauliflowers, dozen	2 0	3 0	Parsnips, dozen	1 0	0 0
Celery, bundle	1 0	1 3	Potatoes, per cwt.	2 0	3 0
Coleworts, dozen bunches	2 0	4 0	Salsafy, bundle	1 0	1 6
Cucumbers, dozen	6 0	10 0	Scorzonera, bundle	1 6	0 0
Endive, dozen	1 3	1 6	Seakale, per basket	1 6	1 9
Herbs, bunch	0 3	0 0	Shallots, per lb.	0 3	0 0
Leeks, bunch	0 2	0 0	Spinach, bushel	2 0	0 0
Lettuce, score	0 9	1 0	Tomatoes, per lb.	0 4	0 6
Mushrooms, punnet	1 6	2 0	Turnips, bunch	0 0	0 4

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (golden) dozen	6 0	to 12 0	Foliage plants, var., each..	2 0	to 10 0
Azalea, per plant	2 6	3 6	Genista, per dozen	10 0	12 0
Cineraria, per dozen	6 0	9 0	Hyacinths, per dozen	6 0	9 0
Cyclamen, per dozen	9 0	13 0	Lily of the Valley, per pot	1 3	2 0
Daffodils, per dozen	9 0	15 0	Lycopodiums, per dozen ..	3 0	4 0
Draœna terminalis, dozen	24 0	42 0	Marguerite Daisy, dozen ..	6 0	13 0
viridis, dozen	12 0	24 0	Myrtles, dozen	6 0	9 0
Erica gracilis, per dozen ..	9 0	12 0	Palms, in var., each	1 0	21 0
" hyemalis, dozen	12 0	18 0	(specimens)	10 6	63 0
Euonymus, var., dozen	6 0	13 0	Pelargoniums, scarlet, doz.	4 0	6 0
Evergreens, in var., dozen	6 0	21 0	Solanum, per dozen	9 0	12 0
Ferns, in variety, dozen ..	4 0	18 0	Tulips, dozen pots	6 0	8 0
Ficus elastica, each	1 6	7 0			

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	2 0	to 5 0	Maideuhair Fern, dozen	6 0	to 12 0
Azalea, dozen sprays	0 6	0 9	bunches	1 6	2 0
Bouvardias, bunch	0 6	1 0	Mimosa or Acacia (French)	2 0	4 0
Carnations, 12 blooms ..	2 0	3 0	per bunch	2 0	4 0
Cineraria, dozen bunches ..	9 0	12 0	Narciss (French) dozen	2 0	4 0
Cyclamen, dozen blooms ..	0 3	0 6	bunches	2 0	4 0
Daffodils (double), dozen	2 6	4 0	Narciss (various), Scilly	2 0	4 0
bunches	3 0	8 0	dozen bunches	9 0	12 0
Daffodils (single), dozen	4 0	6 0	Pelargoniums, 12 bunches	6 0	9 0
Eucharis, dozen	4 0	6 0	scarlet, 12 bunches	3 0	6 0
Euphorbia jacquiniæflora	2 0	3 0	Poinsettia, dozen blooms..	0 6	0 9
dozen sprays	0 6	0 9	Primula (double) 12 sprays	1 6	3 0
Epiphyllum, dozen blooms	3 0	6 0	Roses (indoor), dozen ..	4 0	9 0
Freesia, dozen bunches ..	4 0	8 0	Red, per doz. blooms..	1 0	3 0
Gardenias, per dozen	4 0	6 0	Tea, white, dozen ..	2 6	6 0
Hyacinths, dozen spikes ..	1 6	3 0	Yellow, dozen	1 6	3 0
Hyacinths (French) dozen	6 0	9 0	Snowdrops, dozen bunches	1 0	2 0
bunches	2 0	4 0	Tuberoses, 12 blooms ..	0 6	1 0
Lilium longiflorum 12	6 0	9 0	Tulips, dozen blooms ..	4 0	6 0
blooms	2 0	4 0	bunch	1 0	2 0
Lilium (various) dozen	0 6	1 0	Violet Parme, French bchs.	1 6	2 0
blooms	3 0	4 0	Czar	1 0	1 6
Lily of the Valley, dozen	1 6	3 0	" small bunches	1 0	1 6
sprays	2 0	3 0	English, dozen	2 0	3 0
Marguerites, 12 bunches ..	1 6	3 0	bunches		
Mignonette, 12 bunches ..			Wallflowers (foreign), dozen		
			bunches		

TRADE CATALOGUES RECEIVED.

The "Stott" Fertiliser and Insecticide Distributor Co. (Ld.), Barton House, Deansgate, Manchester.—The "Stott" Horticultural Specialties.

Dicksons & Co., 1, Waterloo Place, Edinburgh.—Catalogue of Farm Seeds.

Messrs. Harrison & Sons, Leicester.—Catalogue of Farm Seeds.



SOILS AND MANURES.

AGAIN? Yes! most emphatically again, and many more times do we intend returning to this, the most important section of agricultural training, the basis of all good culture, the very keystone of success. One or two lessons are of very little use. When we come into actual contact with ignorance and prejudice, the only safe plan is to keep on teaching the same plain lesson, each time giving examples from actual practice calculated to enforce the truth. Here is an instance of one of those half statements which tend to hinder rather than help either the beginner or old practitioner.

Speaking on the comparative value of manures a week or two ago, the President of the Norfolk Chamber of Agriculture said that farmyard manure was indispensable for heavy land because of the vegetable matter in it; without such vegetable matter he could not make the land "work." Now, nothing could be more vague and misleading than such a statement. What the speaker meant to convey was evidently the fact that the decaying vegetable matter—humus—in farmyard manure acts mechanically upon soil at first, such action becoming less, and ceasing altogether with the final decay and absorption into the soil of humus. In plain language, the straw or litter becoming mixed with the soil separates its particles for the moment, but it is obvious the effect only lasts while the litter remains at all hard and firm in texture. Clearly, then, the speaker valued manure even more for its mechanical action than for its manurial constituents. He might as well have said farmyard manure has this effect, which is so essential in heavy land tillage, therefore it must be used; chemical manure has not this effect, therefore it must not be used, and we must go on making muck at any cost. Yet, at the same meeting, Mr. F. J. Cooke had said that a farmer of his acquaintance had shown him that his farmyard manure cost him as nearly as possible £1 per ton, on account of the loss on the bullocks he kept during winter. Add to this the cost of carting, placing in a heap, turning the heap

over, carting on to the land and spreading, then subtract the value of the average amount of available fertility—i.e., 28 per cent. in a ton of manure—and the result will certainly show that the game is not worth the candle.

We are told that the country is full of inferior cattle; we believe the statement to be perfectly correct. Anything like remonstrance is met by the assertion that farmers know their own business best, and one cannot farm without stock. But then, we ask, Why not keep stock that is likely to be profitable, and not half-bred starvelings? The answer is, Because the custom has grown of purchasing inferior Irish stores at market simply for the manufacture of muck. If, after wintering in yards, they can be sold without a loss, the manure is regarded as sufficient profit, but when they are sold for less money than was given for them, as so frequently happened last year, then comes an outcry about low prices. If heavy land farmers, instead of wasting their means year after year in this manner, would only as persistently burn clay for ploughing into the soil, then use chemical manures, they would impart permanent mechanical division, and the requisite degree of fertility to insure friable land and full crops. Nothing can be plainer, more certain, more economical. Help might be had by tenant farmers from their landlords in clay burning, just as is already given in liming and draining, if only tenant and landlord could be made to understand how by such means soil may be improved.

Leading agricultural societies have given recognition to the importance of reform in imparting fertility to the soil; they might also do good work by examples of soil improvement, both at big shows and experimental stations. There might be a mass of clay in its crude state, with similar quantities treated with lime, ballast, sand, and coal ashes, showing how by such means the clay is made friable, so that water may be drained from it readily by filtration, air enter it easily, manure be applied to it with certainty, and its cultivation rendered as economical as the best mixed soil. Such a lesson would indeed be valuable; it would be essentially practical, with very little of science, showing farmers how to lighten labour, and how to render their efforts more certain of leading to success.

Curious is it that while English farmers avoid heavy land as costly in cultivation and uncertain in cropping, Scotch farmers are positively eager to acquire such land, giving preference to it, and showing by their successful treatment of it that such preference is not of fancy but of deliberate intent. It must be granted that they manure heavily with natural as well as with chemical manures, the former made by dairy cows whose milk is sold so profitably, and the chemical manures are applied intelligently, a watchful eye being kept upon their action, quantities being varied, and results noted in view of any possible alteration and subsequent improvement.

WORK ON THE HOME FARM.

March came in with sharp frost and frequent snow storms, much to the disgust of Midland graziers, with whom lambing was just beginning. As usual no provision was made for the lambs, the only shelter they had being the hedges. There will be losses again, perhaps as heavy as those of last year, most probably so if hard weather continues. The only possibility of improvement is in landlords showing on home farms how possible it is to prevent losses from exposure. With some such example lambing folds may eventually be adopted even in the Midlands.

Complaints of the prevalence of hoose among yearlings are common enough, which was to be expected after their exposure to the cold wet weather of last summer and autumn. Apply the lesson now by keeping in the calves of this season so that they are never exposed to cold and wet, and feeding them so well from the first that they never can become low in condition. We always in such things act upon the principle of prevention being better than cure. Keep up condition within due bounds; thorough shelter, clean water, snug dry buildings, clean dry bedding, kindly treatment, perfect ventilation, these are the conditions which tend to promote health, robust growth, early maturity. A common fault is to suffer young stock to become so weak and low that they become unhealthy, and then to have recourse to better food and shelter often when it is too late.

As we feared, losses from black leg are now becoming general where

stock have been exposed and half fed. So much inferior hay was made last season that stock which gets little or nothing else, and not a full quantity of it, is bound to suffer. On many a small farm in Leicestershire two or three young beasts have been lost recently, the pity of it being that such losses are regarded as "bad luck," no effort being made to avoid a recurrence in the future, or any inquiry if improvement in management is possible. Surely opponents of technical education will admit that if such persons could be shown how possible it is to prevent losses which now tell so heavily upon them by changes in management entirely within their means, it is worth while. We hold that much improvement in practice generally is both desirable and possible, not the least of which is the shelter and general management of live stock.

OUR LETTER BOX.

Wintering Cows (W. R. R.).—The advice so frequently given to keep cows in yards and cowhouses in winter, and not to turn them out at all on pasture till there is a full bite—i.e., abundance of herbage, is for the benefit of the cows as well as of the pasture. Get the cows settled in their winter quarters sufficiently early in autumn to avoid exposure to cold showers and frosty nights, and then keep them there till spring. They soon settle down, require no more exercise than can be had in a commodious yard, and are quiet and contented. If, on the contrary, they are turned out on pasture for "exercise" on fine days they become unsettled and discontented in the yard, crowding about the gate fighting and lowing till they are let out to poach up the pasture or stand about in the cold. We have known so much harm result from this that we make it a stringent rule never to turn them out in winter. Only last week a worthy farmer of the parish in which this note is written lost his best cow from exposure. Now, as to winter diet. Surely there is nothing unnatural about the best meadow hay, crushed Oats, bran, Carrots, Mangolds, and cattle Cabbage? It is absurd to suppose a cow can derive benefit from nibbling bare pasture in winter, apart from the risk of exposure. Remember, too, that all cows in most herds are then pregnant, and especially require the quiet, warmth, shelter, good food, clean litter, pure water, and pure air which we recommend. We have never advised sudden changes of food. In autumn the cows are first of all kept in the yards at night, going out to grass by day, so as to accustom them to winter quarters and winter diet till when the weather breaks they are kept in altogether. In spring they have Rye mown and taken to them in the yards, followed by Rye Grass or any other green forage as it becomes ready, and so are gradually prepared for the pastures. When these are ready the cows are milked and turned out by 7 A.M. The "full bite" enables them to consume enough food in about two hours, and then to lie down and contentedly ruminate. Very different this to wandering all over the pasture without being satisfied. These are our reasons for the advice we have given: can any of the owners of those very good Jerseys you mention give any reason other than mere custom for their practice? We may usefully add that a neighbour of ours used to turn out his cows regularly in winter for exercise; we saw them frequently standing about on the sodden pasture, evidently cold and miserable. This was in the winter of 1890, not a particularly severe winter; but the exposure caused abortion to run riot through the herd, and since then the cows have been kept in during winter. This is an instance of dearly bought experience, and you may rely upon it our advice is not lightly given.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1892. February and March.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 28	29.922	37.0	34.9	N.E.	38.6	42.3	32.2	61.9	28.9	0.013
Monday .. 29	29.838	38.1	36.8	N.E.	38.4	42.6	35.9	71.9	32.9	0.062
Tuesday .. 1	29.912	37.2	36.2	N.E.	38.2	40.0	34.1	49.9	30.0	0.096
Wednesday .. 2	30.082	30.2	29.1	E	37.9	31.4	29.7	38.9	29.4	—
Thursday .. 3	30.265	28.8	26.4	N.E.	36.8	33.9	27.1	74.2	27.2	—
Friday .. 4	30.339	31.1	29.7	N.E.	36.0	34.0	28.1	52.8	28.2	—
Saturday .. 5	30.334	31.7	31.2	N.	35.7	49.0	26.9	71.2	24.9	—
	30.099	33.4	32.0		37.4	37.7	31.6	60.0	23.7	0.171

REMARKS.

- 28th.—Bright sunshine till 11 A.M., overcast afternoon and evening.
 29th.—Rain early, overcast till 10 A.M., then alternate cloud and sunshine, and heavy sleet showers at 0.5 and 2.45 P.M.
 1st.—Overcast morning, spots of rain at midday, a little sunshine after 3.30 P.M., sleet and snow in evening.
 2nd.—Ground white with snow, overcast all day, and snow crystals falling almost continuously.
 3rd.—Flakes of snow falling at frequent intervals nearly all day; bright sun for a few minutes about midday.
 4th.—Generally overcast, but occasional gleams of sun.
 5th.—Bright and sunny throughout.
 Cold, especially the latter part, which has been excessively keen. Great difference (40°) between shade and sun maximum on 3rd.—G. J. SYMONS.



THE season is practically at hand when a final decision must be made respecting the crops to be grown in gardens large or small. Large supplies of vegetables throughout the year from small gardens are the most difficult to obtain, the ground in most cases having to be cropped twice in order to meet requirements. In such cases the production of good crops is much more difficult than in large gardens when proper rotations can be adopted, nor can the greatest success be attained by the applications of suitable manure to make good the loss of ingredients abstracted from the soil when two or more crops of a similar nature have to be taken from the land for years in succession.

It will be wise first to consider the advantages which arise from a good rotation of crops and the results of a bad rotation. We are in gardens, even after considering the advantages of the spade for cultivating the land, placed at a great disadvantage as compared with the agriculturist, who can change his crops to such an extent that they practically take from the soil different constituents, and if sown with grass as practised in some counties, mown twice, or two years in succession, grazed for two years, and then broken up, the land is again stored with fertility for the succeeding crops, applying manure for every alternate one. In gardens we can give the land no such change of crops, yet the produce from gardens well cultivated more than favourably compares with the produce from even the best managed farms. In selecting plants or crops to form a rotation it is important to take into consideration the soil with which we have to deal, then to select plants to follow one another which differ as widely as possible in their modes of growth and habits, having regard to the food they require in the largest proportion. What we have to avoid in a good rotation is not to plant two crops which draw exactly the same constituents from the soil. To grow, for instance, two root crops in succession on the same land could only be regarded as a very bad rotation, and the same may be said of the Brassica family.

We followed some years ago a garden form of what may be termed the "Norfolk rotation," or a four-years course of cropping. Our crops differ, but the principle is the same, and we have found it to answer exceedingly well. For illustration we divide the main part of the garden into four portions. The first is double dug or trenched, or the soil is deepened as much as possible, and not manured, as it has been occupied previously with Celery. In spite of the good working the soil receives from that crop it is turned two spits deep or thoroughly trenched, according to the depth and nature of the soil. This ground is occupied with Onions, Parsnips, Carrots, Beet, Salsafy, Scorzonera, Chicory, or any other roots it may be necessary to grow. If any space is left it is cropped with late Broccoli. We will follow the second year of this plot, which is cropped exclusively with Peas, a light manuring only being given to prevent the Peas running too much to straw. The portion manured heaviest is that on which the late Broccoli have been grown, which are cleared away in time for the latest sowings of Peas. Amongst the Peas sowings of Spinach and Radishes are chiefly made, and those not used are either conveyed to the manure heap or turned into the land between the Peas. This we prefer, as there is then but little loss to the land by the growth of these crops. The mineral matters are returned in an almost available form for plant food, and the soil is also enriched

in organic substances. Most of this ground is cleared to allow of early autumn digging, and it should again, if stiff or moderately stiff soil, be turned up deeply, to be acted upon by changes of temperature, rain and frost. The action of the atmosphere not only insures the easy working of the ground in spring, but acts upon the dormant plant food in the soil and renders it active. Perhaps, more correctly speaking, it so changes insoluble substances that they are easily acted upon by chemical agencies. The third year this plot is cropped with Ashleaf Potatoes, placed 3 feet apart, with Brussels Sprouts between. For this crop the land is fairly well manured, and after the Potatoes are removed the Sprouts are given either liquid manure or some suitable artificial manure on the surface, and well watered in if the weather is dry. We want to point out that this plot of Sprouts is grown for a main or general crop; if a few very early ones are needed they are grown elsewhere. This we have found necessary, because if the Potatoes do well the lowest Sprouts that would otherwise form are lost. Half the plot, however, is occupied with plants raised from seed sown in February, and the other half with plants raised outside. If the space is too large we fill with late Broccoli. The fourth year this plot is occupied with Celery, the ground being well manured, deeply dug, and the Celery planted practically on the surface, drills being drawn about 2 inches deeper than those required for Peas, or say 4 inches deep. In addition to the liberal dressing of manure, liquid or artificial are given and watered in. We have found soot an invaluable stimulant for Celery. Between the rows second early Cauliflowers, Lettuce, French Beans, Turnips, and Radishes are grown. We avoid the former if we can. In order to attend to the watering of the Celery every alternate space between the rows only is planted. It will thus be seen that the cropping comprises first roots, second Peas, third Potatoes and Brussels Sprouts, and fourth Celery.

On all borders inside or outside of the garden walls the same principle of cropping should be carried out, but the crops to be grown depend largely upon requirements. A few instances may suffice. Where there are four warm borders one may be occupied with a variety of early vegetables—namely, Carrots, French Beans, Lettuce, Radishes, Turnips, and so on; another may be cropped with Peas and Broad Beans, a third with Potatoes, and the remaining one with Cabbages and Early Cauliflowers. These borders will all be clear in time for Early Nantes Carrots, Leeks to be lifted and laid in for late spring use, Turnips, Spinach, Lettuce, Endive, Cabbage for spring, Coleworts, or even the latest Cauliflowers. Where Leeks are appreciated early in the season an east or west border is selected for them, the ground is deeply dug and heavily manured, these are succeeded the next year by Autumn Giant Cauliflowers and the following year by Potatoes. The border is then turned early and as deeply as possible for seed beds the following spring. After these are removed the ground is planted with Cabbages in September to succeed those planted on a south border. In large gardens we find it necessary to retain two borders at least for seeds, the one for the Brassica family and the other for herbs, Radishes, Lettuces and other vegetables. The one may be cropped as we have described, while the other will be occupied nearly the whole of the season, and probably cannot be dug before spring.

North borders are much more useful than we regarded them at one time. There is, perhaps, no place in the garden so valuable for yielding a late supply of Kale; the plants grow sturdily and stand the winter remarkably well, scarcely ever a plant fails, and they yield abundance of greens until midsummer. The varieties that are especially valuable for these positions are Curled Sprouts, Sprouting Broccoli, Cottager's Kale, Asparagus Kale, and Dwarf Green Borecole. The last is highly esteemed here, and a border is devoted exclusively to them. These borders are valuable for Spinach; we find that it stands well, and is a long time before it is over. Our latest sowing is made in this position, and although the plants

sometimes look thin in spring, there is generally an abundance for a crop, and they usually produce the finest leaves, an earlier sowing being left thicker in the rows so that dishes can be gathered when required. These north borders are also valuable for late Broccoli, provided the plants are not raised too early. The heads may only be small, but they are invaluable, and often fill in a break that would otherwise occur in many localities between Broccoli and early Cauliflowers. North borders are useful for Cauliflowers during the hottest and driest part of the season. They are also very useful for Radishes and Lettuce. These borders are changed by cropping them with Turnips, Violets, and late Strawberries, the last remaining on the ground two years. The borders have a tendency to be stiff and work badly by having winter crops on them so frequently, but when Violets and Strawberries are cleared off, they are given thorough autumn and winter cultivation, and are again well worked in spring as soon as the surface is sufficiently dry. By the time it is necessary to put in the next crop the ground is in a good state of cultivation. The ground for Kale and Broccoli grown in these positions must not be heavily manured at planting time, or a soft growth will result. The plants should be grown hardy and assisted in spring.

The main plantations of Broccoli should not be crowded or grown in sheltered places. Such treatment results in severe weather destroying the lot. The plants to commence with should be hardened by transplanting them from the seed bed to an open exposed position, and then to the ground they are to occupy. Suppose the ground has previously been cropped with late Potatoes, or better still late Peas and Runner Beans, the ground is firm, the surface only is dug in spring 2 or 3 inches in depth. The plants cannot grow very rapidly on firm ground that was not manured for the previous crop. They are grown without until severe weather is passed, when manure is spread amongst them, and its fertilising ingredients carried down to their roots. The heads are not large, but they are large enough for all practical purposes, and we have found the plants pass severe winters better under this method of culture than any other.

It is often difficult for beginners, for which these notes are intended, to know what to do with ground that is being occupied so late in the season. It will, however, yield various good crops, such as Leeks, Turnips, Kidney Beans, Runner Beans, Potatoes, late Celery and Peas. For the first two the ground only needs to be well dug, if plenty of manure has been previously spread on the surface. We have had good crops of Potatoes by digging in the manure between the rows, planting them at the proper time, and then breaking up the ground between the rows after the Broccoli has been cleared away. Dwarf and Runner Beans, also Broad Beans, may be planted in the same way. Peas have been found to do least satisfactory when planted between the rows dug up; but when the ground has been cleared, properly dug, and well manured we have found late supplies satisfactory.

If we have in contemplation the destruction of a plot of Strawberries after fruiting, and ground occupied with late Broccoli is in a suitable place, it should be well prepared for planting with runners as early as they can be obtained. The main object to consider in cropping a garden and being rewarded with good results is thorough cultivation of the soil. On stiff clay lands especially should early autumn and winter cultivation be practised wherever crops can be cleared off in time. This can be done by forethought and judicious management; in fact, certain quarters can be periodically turned up for exposure during winter. The ingredients taken from the soil by certain crops should be returned in the form of farmyard manure, specially prepared refuse heaps, or by artificial means.—WM. BARDNEY, *Osmaston Manor Gardens*.

BLACK BRYONY.—If "S. S." (page 164) will send me his address I will forward him a plant from the hedges of Black Bryony when they shoot up in the spring.—DAVID WILLIAMS, *Failand House, Failand, near Bristol*.

PREPARING FOR SUMMER BEDDING.

THE next two months will be a busy time with all who have large quantities of bedding plants to prepare for summer. The work of sowing, propagating, and potting will require pushing on with speed to secure strong plants by the time they are wanted. Many annuals which are extremely useful for bedding purposes should in ordinary seasons be sown early in March in cold frames, but the very severe weather we have experienced recently has, doubtless, prevented many from sowing. It can be but little gain in the matter of earliness to sow seeds in cold pits while from 10° to 14° of frost are registered each night, the succeeding days being also deficient in sunshine. When, however, the present spell of wintry weather is over we may reasonably hope to see the genial influence of sunshine, quickening vegetation into rapid growth and hastening the germination of newly sown seeds, which have been kept in the seed room safe from the sharp frost of early March.

The present time affords a good opportunity for preparing pits and frames for seed sowing. A little extra attention given to the soil is well repaid by doing much to secure quick clean growth. Soil in which Cucumbers and Melons have been grown during the previous summer months is, with other additions, excellent for the purpose. Fairly good garden soil, or any that may be at command from alterations in progress about the grounds. The latter generally possesses the great advantage of being free from many minute insects which abound in old garden soil, and that previously used in pits. Whatever soil forms the staple the only other additions necessary are a sufficient quantity of sweet leaf soil to render the whole light, some sharp sand, and a little burnt refuse; for the latter all kinds of vegetation seem to have a great liking. These materials should be thoroughly mixed before using.

In cases where the addition of 3 or 4 inches of this compost will bring the surface of the bed up to within a foot of the glass at the back of the frame, and 6 inches at the front, it will not be necessary to place anything underneath. If otherwise put in a sufficient quantity of leaves, which should be trodden firmly, to bring the surface up to the necessary height. The first 2 inches of soil need not be sifted, unless in a very rough state; the remainder should be passed through the half-inch sieve, be pressed moderately firm, the surface raked level, and a slight thickness of still finer soil placed on. All will then be ready for sowing seeds or pricking out seedlings.

In beds thus prepared *Dianthus Heddegi*, *Carnations* and *Marguerites*, may now be sown thinly, and will not require transplanting till they are wanted for bedding purposes. Where early sowing of these have been made they will soon be ready for pricking out 3 inches apart in similar positions. Ten-week Stocks and Zinnias succeed well under the same conditions. The great point to be aimed at is to prevent overcrowding at any stage. Sow thinly, and if they are likely to get too crowded before planting-out time, thin early to secure short sturdy growth.

The many beautiful varieties of *Phlox Drummondii* are extremely effective during the latter part of the summer, but they may be had in flower much earlier than is generally the case if more attention is given to their culture. They are too frequently sown rather thickly, and left to take their chance till bedding-out time, when it is found they have become drawn and "weedy" in appearance, from which condition they take some time to recover, and in consequence produce only a late display. If seeds are sown at once in boxes, or on beds prepared as previously directed, kept steadily growing on without becoming crowded, the result will be a more robust growth and a longer period of flowering. To accomplish this sow each seed an inch apart, and when large enough transplant every alternate seedling.

Godetia Lady Albemarle is a fine annual for supplying cut flowers, and is fairly useful for bedding purposes; its greatest fault is that it grows a little too tall. The dwarf form of it now sent out should therefore be a great acquisition, and I intend to try some this year. *Verbenas*, seed of which can now be obtained in distinct colours, are indispensable for summer bedding, and when treated as annuals the flowers produced are certainly much larger, and the habit of growth more robust. It is not yet too late to sow in order to secure good plants by the end of May. It is, however, preferable to sow about the end of February. These plants always appear to me to thrive better on a hotbed than in any other position, and I would advise seeds sown now to be placed in such a position. When large enough to transplant, if set from 3 to 6 inches apart on prepared soil over a hotbed, if other cultural details are well carried out, fine strong plants will be obtained. *Petunias*, Dwarf French Marigolds, and *Tagetes* should also be sown now. If sown thinly each succeed well without transplanting. The first week in April is soon enough to sow all types of *Asters*. Two other highly attractive and useful annuals are the dwarf varieties of *Larkspur* and *Collinsia bicolor*. These should be sown

where they are to flower, about the middle of April. Many other plants might be enumerated, but I think it better to be content with a good show of a few varieties each season, so that fresh features may be added in succeeding years.—H. DUNKIN.

NOTES ON APPLES.

RED BIETIGHEIMER.—In reference to Mr. Rivers's article on page 140 of the *Journal of Horticulture*, it may interest your readers to know that the Red Bietigheimer Apple was imported to these nurseries some time since under the above name, and as it was remarkable for its growth and foliage we cultivated it to prove its nature. Soon after the Cranston Co., of Hereford, exhibited very grand examples of it at a Crystal Palace Show, where its remarkable salmon-red colour at once attracted attention, and led to a demand for exhibition purposes, as it makes a striking dish. We find it a robust free grower, but in the young state it crops very sparsely, and is apt to cast its fruit, so that we should only recommend it for exhibition, though probably, like *Mère de Ménéage* and *Waltham Abbey*, it may crop regularly when the trees gain age. We do not deny that it may have many other names, but so have nearly all good fruits; and a nursery catalogue is scarcely the place for a lengthened list of such. It is in season in October, and therefore cannot be confounded with *Norfolk Beefing*, a very late Apple.

BAUMANN'S RED REINETTE.—This is a fine variety here. It crops most abundantly, carries fine colour, and often attains a large size. It may not do so well in colder counties, but we know it is a favourite with Mr. Barron at Chiswick, and will as a market Apple take a high position. It is good in quality as grown here.

WEALTHY.—A very fine Apple, most distinct in its growth, quite hardy and a capital bearer. Its flesh is soft and pleasant and the flavour is good, while it is among the most beautiful fruits we grow, and being from three to four times the size of *Colonel Vaughan* must not be confounded with that second-rate market Apple. *Wealthy* has given great satisfaction to our customers, and is a distinct gain for exhibition and table purposes.

Our experimental orchard now reaches nearly 400 varieties of Apples which are under trial, and any good ones will be selected for culture and be duly submitted to competent authorities, amongst which the *Journal of Horticulture* will not be forgotten.—GEORGE BUNYARD AND CO., *Maidstone*.

RUELLIA. MACRANTHA.

How often in country gardens or provincial nurseries we find some rare old-fashioned plants, none the less meritorious for being scarce, but retained and propagated in their old homes year after year, not gaining the notice that would be obtained in larger towns, where good plants soon become known. The *Ruellia* named above I saw at Mr. E. Cave's nursery, Newport, Isle of Wight, when visiting there last December. There, in one of the intermediate houses, near the scarlet *Centropogon* bristling with flower buds, were three or four plants of *Ruellia macrantha* which they had obtained somewhere in the island a few years ago. I must confess it was a stranger to me, and I found upon inquiry that no one that had seen it had recognised it. On searching Dick's "Gardener's Dictionary," 1769, in the possession of Mr. Cave, we found several varieties of *Ruellias* mentioned, but not this particular variety, neither is it mentioned in Johnson's "Gardener's Dictionary." My object is especially to call attention to the merit of the plant for winter flowering in the conservatory, or to afford blooms for cutting. The plant is sub-shrubby, a good companion for, and similar in growth to *Justicias* or *Thyracanthus*, the flowers of a rosy purple hue, about the size of an *Allamanda grandiflora*. They last a long time when cut. I have some now that have been cut three weeks, and they are only just showing signs of decay. No doubt the plant could be as easily propagated as others of that class. It may be more common than I am aware of in some parts of the country, but nevertheless it is worth general cultivation as a winter-flowering plant.—C. ORCHARD, *Bembridge, Isle of Wight*.

OPEN AIR PEACHES.

IN taking a careful review of the various articles contributed upon this subject I cannot but feel that some good will result from their publication. I am sorry if any so-called personalities I may have indulged in in this controversy should have the effect of causing the slightest pain to any of my opponents. I am somewhat surprised that so experienced a writer as Mr. Iggulden should so far forget himself in the article contributed on page 168 as to endeavour to saddle the

responsibility of my articles in so personal a manner upon one of the best horticultural writers of modern days. Thank you, Mr. Iggulden. What ambitious thoughts the compliment engenders! yet "begone false thought" and allow the humble pen of "Nous Verrons" to pursue its way. It is for practical knowledge I thirst, not literary attainments.

Allow me to say that the majority of gardeners Mr. Iggulden advises me to visit "once more" are strange to me personally. I know them by repute alone, and should not shrink from criticising the system adopted by any one of the gardeners named if I thought it as faulty as that advanced by himself. Those readers who have watched closely the articles contributed must allow that what I advanced in my original article has so far proved true. Take for instance the short note by "W. H. W." (page 144) and supported by Mr. John Chinnery, who also states that Mr. Iggulden's success on the exhibition table is sufficient proof of his ability as a Peach grower to justify anyone in attaching importance to any statement he may make respecting his practice. What a statement for a practical man to make or support! Do not such statements make Mr. Iggulden tremble for his future reputation? How careful he ought to be not to omit one word in any future MS., or he may find in his travels many ardent admirers busy with knife and spade undermining Peach trees laden with crops of fruit. Did he win prizes in good competition with fruit from trees treated as he advised? If not, what is there left of Mr. Chinnery's argument?

In perusing carefully the different articles it must strike readers very forcibly that some of Mr. Iggulden's supporters are far more willing to adopt the treatment he advances in his original article than he is himself. His reply upon page 168 is exceedingly moderate compared with his former article, although he still adheres to the assertion that it is perfectly safe and advisable that root-pruning be carried on up to the time the trees are in flower. I am pleased to see that he has omitted "when they have growths on them 6 inches long." I still maintain that this is faulty teaching. Simply because the two young trees moved "whilst in full flower" did not die the operation is lauded as successful and beneficial. Successful I allow, but beneficial never. If this is no "new method" of treating Peach trees, how is it that the Peach trees at Marston have only just been operated upon? Is it not new to them? There is no need for me to force this question further, because Mr. Iggulden admits in the last paragraph of his article (page 168) exactly what I maintain; that is, if a young tree is found growing far too strongly to be productive it should be root-pruned or completely lifted in the autumn, not in May.

I will now turn my attention to the more recently written article by Mr. A. Young, on pages 179 and 180. It is rather unusual for him to enter so fully into a controversy, and I must confess some slight disappointment that so able a gardener is so wide of the mark. He commences his critique by accusing me of "stretching a point." I think when he looks more carefully into the question he will admit that it is himself who has fallen into that error. He states that when reading that part of Mr. Iggulden's article relating to the "young trees moved whilst in full flower" that it "naturally" occurred to him that the meaning was simply to illustrate that Peach trees could be lifted without fear of any harmful results before growth commenced. The sentence did not occur to me as such, and Mr. Iggulden's reply (page 130) must certainly convince Mr. Young that it was never intended to convey that impression alone, because he states, "when in flower, or even when they have shoots on them 6 inches long." After such a statement as this I think Mr. Young's charge of my "stretching a point" is exceedingly weak, and I certainly cannot modify my views to meet such treatment as this.

I cannot agree with the dictum of Mr. Young, however certain he may feel, that no harmful results would happen to a Peach tree lifted when the buds have commenced moving than would happen to a *Fuchsia*. I consider the comparison weak, because you may cut off all the roots from a *Fuchsia*, and it will recover without any apparent injury; but adopt the same tactics with a Peach tree, and watch the results. To practically test my views of the extra work involved by this "late moving," perhaps Mr. Young will, for experiment, move a Peach tree when it has growths 6 inches long; he will certainly be better able then to test whether "my ideas are more imaginary than real."

I assure Mr. Young that I was quite serious in my comments upon Mr. Iggulden's "lifting or root-pruning in full bearing." Why should I be otherwise, seeing that the expression was used? Am I to read a sentence, and then "naturally" take it to mean something else? This would appear to me a most unnatural proceeding to follow. Anyone reading Mr. Young's article would think that I had condemned the operation of root-pruning entirely. This is wrong. I have never questioned the system of root-pruning when it is found necessary, and performed at the right time. I can point with pleasure to many trees under my charge which have been severely root-pruned, and should not hesitate to compare results with the produce grown even by Mr. Young. His remarks respecting the success with lifting loses weight by his not stating at what period the trees were operated upon. My principal objection throughout has been to condemn moving trees so late as May. This is the standpoint I take after many years' careful observations. I have seen trees moved carefully in various stages, and am fully convinced that whatever root-pruning is necessary it should be done in the autumn, "early in November," and I have not yet heard one good reason advanced to the contrary.

Mr. Young also accuses me of "stretching another point," because I stated that Mr. Iggulden recommended manipulating the roots yearly.

Surely by answering him in Mr. Iggulden's own words he will be convinced that these accusations of "stretching" are unfounded. In the second column, page 168, Mr. Iggulden writes, "If the trees are lifted every autumn or spring," and further to support his statement of annually lifting the roots, he advises me to pay a visit to Mr. Young. This is rather conflicting evidence, I think, to recommend me to visit a place where annual lifting is disputed.

It may interest my opponents to know that I do not happen to be one of those "old fogies" Mr. Young mentions, who are afraid to touch a root or lift a tree. I have during the past few years lifted the whole of the Vines in three large vineries, half the trees in two Peach houses, and more than a hundred trees upon outside walls, without a single failure of crop or otherwise. Therefore it will require far more powerful advocates than those engaged in this controversy to convince me that science has made such rapid strides during the past few years as to enable man to reject the laws and teaching of Nature, and utterly despise the resting and active periods of vegetation. If this is science and good gardening, then my past teachers and advisers are, like myself, ignorant of either.—*NOUS VERRONS.*

MUCH practical information may be gained from a discussion on this subject, for as most fruit growers have some way of their own in treating trees under their charge, some good is sure to result from a thorough ventilation of this important branch of horticulture. Those who are experts in the management of this most luscious fruit would be doing a great service to their fellow workers by stating their mode of culture as concisely as possible. I have no great faith in looking upon what is seen on the exhibition table as being a criterion of a person's ability, for I know as a fact that a great deal of what is exhibited is not grown by the exhibitors.

To grow Peaches in the open is not such an easy task as some people imagine, especially in districts where the soil is cold and wet, and the situation exposed. In such places trees are apt to grow very late in the season, and on that account do not ripen their wood and make fruit buds so freely as is desirable. I have seen shoots 6 feet or more in length laid in by some who consider themselves, and are looked upon as, great fruit growers. These shoots had been cut back to a treble bud simply because that was the only one on the shoot, the others having made lateral growths. Now how can shoots of this kind produce fruit? Yet hacking them off year after year goes on till they become so close to each other at the bottom of the tree that there is no room for fruit-bearing wood to exist. To my mind well grown Peach trees should not require any pruning unless it be to thin the wood where it is too thick. If disbudding be properly performed in the summer then no more shoots will be caused than are wanted for fruit-bearing wood the following season. I do not believe in cutting back Peach shoots unless it be one or two that happen to grow too strong. To prevent this occurring again a heavier crop of fruit is taken from them another season. The finest crop of Peaches it was ever my lot to see was grown in Lancashire some twenty-two years ago. The trees had not been subjected to that scientific pruning and training some people are fond of advocating, yet this unfavourable district produced Peaches that would have done credit to any show table in the kingdom.

Can it be possible for a person who has never had a fruit tree under his care to instruct others who all their lives (and who have lived to be a good age) have had charge of their management? Yet this seems to be the case, for we have them pointing out to us how these things should be done. Some very fine fruit used to be grown at Carton, the seat of the Duke of Leinster in Ireland, but I never saw a shoot on the trees thicker than a Wheat straw. These trees were never lifted or root-pruned, but having well-made borders received liberal supplies of liquid manure when the fruit was swelling, and wherever there were two flower buds together one was removed before the flowers opened. I have lifted Peach trees when in flower, and taken a fine crop of fruit from them the same season; but this has been an exceptional case, and not one to be advocated, for it entails a great amount of labour during the summer, especially if the first part of the season should be dry. It seems strange to me that so few of the gardeners in large establishments give us any information as to their experience.

There is a vast difference between writing an article on any given subject and giving proof of practical ability to show a profitable balance-sheet. When called upon some three or four years ago to inspect one of the largest fruit-growing establishments in the kingdom with a view to its making a profit, I was somewhat astonished to find how little the person in charge knew of Peach culture. The trees were a disgrace to any establishment, for they had neither been pruned nor trained as they should have been. If anyone will take the trouble to examine the Peach trees in pots exhibited by Mr. Rivers they will find that there is none of that robust growth so strongly recommended by some. The growth is of moderate strength, well ripened, and therefore in a condition to carry a crop of fruit; for without this Peach culture is sure to be a failure.—*POMOLOGIST.*

RENOVATING GRASS VERGES.

IF we had not been troubled with the severe weather we are now experiencing work in the pleasure grounds would have been in full operation; as it is, we should be prepared for the change in the weather, and nearly one of the first things to claim our attention is the improving or renovating of the grass verges, which always need a certain amount of attention. It is well known that by continual cutting with the

edging knife year after year that the verge soon loses its neat appearance, and makes the walk look untidy. There are numerous ways in which the effect may be improved, and the following is perhaps one of the easiest:—Line out the walk to the required width, then with the edging knife cut through the sod forming the old verge to a width of 9 inches, and of a suitable length consistent with free handling; cut them underneath with the turfing iron, and place it at one side; loosen the ground underneath and add fresh soil, bringing it to the edge where the new verge is to be laid. When neatly levelled reverse the edges of the sods, bringing the newly cut side to the front; beat down firmly, and ram the loose soil underneath the sods on the outside edge. If carefully laid cutting on the outside edge will be reduced to a minimum. Any small pieces of sods may be used for filling in the spaces left by bringing the verges forward, and these very soon look neat again. By running the knife along the edges any loose soil will easily be removed, which may either be swept up or taken up with the hoe. Loosen the gravel, rake and roll the walks, and the whole will present a clean appearance. The same system may be adopted in putting flower beds into a proper symmetrical form.—*R. P. R.*

NEW GRAPE LADY DOWNSHIRE.

MR. THOMAS BRADSHAW, head gardener to the Marchioness of Downshire, Hillsborough Castle, Hillsborough, County Down, kindly sent me some berries of his seedling Grape Lady Downshire last October, and again early last month. The berries received were of good size, being of a dull amber colour, flavour very pleasant, juicy, and rich, partaking of that of both parents. The berries measured $3\frac{3}{4}$ inches round longitudinally and $3\frac{1}{4}$ inches transversely. The examples received last month consisted of berries taken from bunches grown on the Hamburg stock, and an equal number from bunches grown on its own roots. The former were quite plump, and the latter were shrivelled somewhat; the bunches from which the berries were taken having been cut five months previously, thereby proving that it is a good late white Grape; and, moreover, that it keeps better when grown on the Black Hamburg stock than it does on its own roots. The Lady Downshire Grape is the result of a cross between the white Gros Colman and Madresfield Court. In 1886, Mr. Bradshaw, being then foreman in Charleville Forest Gardens, Tullamore, under that celebrated Grape grower, the late Mr. John Roberts, fertilised a few berries of the white Gros Colman with pollen taken from the Madresfield Court. He took the seeds with him to Hillsborough in the autumn of 1886, and sowed them the following February. The seedlings resulting were inarched on the Black Hamburg Vines the same season. The Lady Downshire making a good strong cane, produced and ripened fruit in 1888—eighteen months from the time the seed was sown. Mr. Bradshaw states that "it is a very strong grower, and bears as freely as the Lady Downe's (black), and that it ripened bunches from $3\frac{1}{2}$ to 4 lbs. each in 1891, the bunches resembling the Madresfield Court in shape." This being so, I should say that the Lady Downshire is destined to become a popular late white Grape in the near future.—*H. W. WARD, Longford Castle, Salisbury.*

ORCHARD PLANTING.

MR. CHINNERY rightly says on page 160 that only by experience can it be ascertained which sorts of Apples are the most suitable for different districts as orchard trees. So variable is the nature of the soil in some localities, that at no greater distance than from two to four miles those that will succeed in one would fail in the other. This is my experience at least in the southern part of Hampshire. Mr. Chinnery gives a very extensive list of varieties, which includes a large proportion of the best, but I fear this list will be of small use to Journal readers outside Monmouthshire in the absence of information as to the nature of soil Mr. Chinnery has to deal with. If he had stated whether it was heavy or light, also described the subsoil, the information would have been useful to many beyond his own county. By describing the soil in which certain varieties flourish, and naming some of those which do not succeed, valuable information is afforded to others. To beginners in Apple culture long lists of names are bewildering. Far better is it to greatly limit the selections and place the varieties somewhat in their order of ripening—that is, if the information is intended for the benefit of the inexperienced.

I feel inclined also to take exception to the method of planting, and especially if the soil is, as I assume it is, heavy—at least, I judge so from the fact that Mr. Chinnery mentions that the land was drained, and it was necessary to place 9 inches of old tiles under each tree to ensure a quick drainage. The points which I take exception to are those of placing the prepared compost at such a depth from the surface, and that of planting the trees 6 inches below the level of the grass. Where holes are dug 2 feet deep, and the trees planted 6 inches below the surface, I should have thought that they stood a chance of sinking in time another 6 inches, or nearly so. I always thought that deep planting was the primary cause of canker in Apple trees. I should have thought also it would have been a better plan to utilise the turf near the surface to plant the trees in instead of burying it 15 inches deep. My experience is that decayed turf forms a capital medium for fruit tree roots to ramify in, and I consider it is much better near the surface than buried at a depth where it will do positive harm by encouraging what I am trying all I know to avoid—deep rooting.—*E. MOLYNEUX.*



NEW CYPRIPEDIUMS.

RAPID advance has been made with *Cypripediums* in recent years, and they are becoming as diversified as some other popular groups of plants. There is no indication at present of a falling off in the demand for novelties, indeed it appears that this is increasing, as more Orchid admirers are becoming familiar with their attractions and the astonishing range of varieties they present. *Cypripediums* generally also possess a most valuable quality, the flowers are freely produced, and these last a considerable time either on the plant or when cut and placed in water. Strongly as these characteristics are marked in such old favourites as *C. insigne* or its now numerous varieties, they are even more conspicuous in some of the hybrids, particularly with regard to the floriferousness, an admirable example of this being afforded by *C. Sedeni*, which is rarely out of flower.

During the year 1891 no less than eleven *Cypripediums* received certificates or awards of merit—namely, *C. Creon*, *C. Corningianum*, and *C. macrochilum* (Veitch), *C. Stonei magnificum* (Heath), *C. Euryale* and *C. Lceanum giganteum* (Sander), *C. Antigone* and *C. insigne Sanderæ* (Baron Schröder), *C. Pitcherianum*, Williams' variety (B. S. Williams), *C. radiosum* (C. Ingram, Esq.), and *C. Masereelianum* (Pitcher & Manda), most of which have been described and figured in this Journal during the past year.

One of notable merit that has not previously been represented is that depicted in fig. 31, page 205—namely, *Cypripedium Creon*, one of the Veitchian hybrids obtained from a cross between *C. oenanthum superbum* and a variety of *C. Harrisianum*. The dorsal sepal is extremely handsome, being of a rich polished purple margined with white, a beautiful contrast, the lip and petals also having a purplish tinge. The flower is well proportioned, and of good size. Both in colour and shape it is a very pleasing addition to the hybrids already in cultivation.

PHALÆNOPSIS.

THE sun is now gaining power, and slight shade should be provided for these plants; they cannot endure bright sunshine. Root action has started, and the plants will soon commence vigorous growth if well cared for. All decayed sphagnum moss must be removed, and the small particles washed from amongst the crocks and charcoal in a tank of tepid water, or by pouring tepid water into the baskets. They should be allowed to drain thoroughly before they are made up again with moss and charcoal. On no account must the moss be cold when applied.

No greater mistake can be made in the culture of these plants than placing too much material about their roots. All that is needed is sufficient to sustain moisture about the plants. They delight in having the tips of their roots exposed when the atmosphere is suitable. They also cling freely to charcoal and the basket. From the present time they may be dewed with the syringe twice or three times daily when fine. Do not allow weakly plants to carry their flowers long, it is a good plan to remove them as soon as they open. It is a good plan to remove the flower spikes as they appear from all weak plants. This gives them every chance of gaining strength.

CŒLOGYNE CRISTATA.

Plants that have become crowded seldom do so well as when the pseudo-bulbs have plenty of room to develop. Plants in this condition may either be broken up or portions cut up, and 6 or 7-inch pans filled with them. The last is an excellent plan, as long as the material in which they are growing is in a perfectly sweet condition. When decomposed or sour it is best to remove it and supply fresh.

CATTLEYA LAWRENCIANA.

This is unquestionably useful, and distinct both in its foliage and flowers from other kinds flowering at this period of the year. It is showy, and worthy of a place in any collection however limited. The foliage is tinted with dark red, and the flowers sufficiently dark to contrast admirably. A few plants arranged with *C. Trianae* in flower are very conspicuous; the flowers individually are not large, but four, five, or more are produced on a spike. This plant does well in pans suspended from the roof in a mixture of charcoal and peat in lumps with a little living moss on the surface during the season of activity. The roots cling tenaciously to the pans, so that when transferring them to larger pans or

pots those in which they have been growing should be broken, and the portions to which the roots cling may be placed into the fresh pots or pans used. It will do well on the stage with other *Cattleyas*, but give it the lightest and warmest position in the house, as it needs thorough ripening and a good season of rest.—ORCHID GROWER.

A GRACEFUL ODONTOGLOSSUM.

AN Orchid that is seldom seen in collections, and which appears to be but little known, is *Odontoglossum crinitum*, though it is attractive in no small degree, and would be welcomed by many to whom it is at present a stranger. It is of medium growth, the pseudo-bulbs small and ovoid in shape, the leaves long and narrow. The flowers are borne on a slightly arching raceme, but are somewhat clustered near the upper part. In the variety *sapphiratum* (fig. 29) the spots, of a bright soft bluish purple tint, are shown up most clearly on a white or light ground; the sepals, petals, and lip



FIG. 29.—ODONTOGLOSSUM CRINITUM SAPPHIRATUM.

being long, tapering to a twisted point; the sepals and petals narrow, and nearly equal in size, the lip being triangular at the base.

LÆLIA ANCEPS AT CLEVELEY.

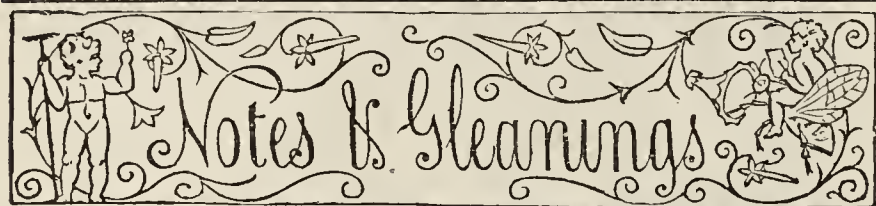
AT no place in this neighbourhood can *Lælia anceps* and its varieties be found in grander condition than has been seen at Cleveley this season. Of the ordinary forms of *L. anceps* there have been 126 spikes with 360 flowers, a beautiful show in themselves. *L. anceps grandiflora*, which I had occasion to mention twelve months ago, has again been especially fine, carrying forty one spikes and 110 flowers. This very fine variety is supposed to be the largest plant in this country, as it remains in one mass as imported by the Liverpool Horticultural Company. It was purchased by

Mr. Timmis in 1886, and was then placed by Mr. Cromwell on a raft 3 ft. 9 in. by 2 ft. 4 in., on which it still remains in a most flourishing condition. Since that time it has borne 260 spikes and close upon 1000 flowers. For the first time Mr. Cromwell has flowered a very fine variety of the grand *L. anceps Stella*. It is indeed a superior form, and is so admitted by all who have seen it. This is fortunately a very large piece and is growing very strong. The spikes are 4 feet long and each carry four very large flowers. Mr. Cromwell does not think that this or any of the white forms will be difficult to flower when we know them sufficiently, and he is most certainly on the successful track at the present time.—R. P. R.

CYPRIPEDIUM CHAMBERLAINIANUM.

MESSRS. SANDER & Co, St. Albans, have during some years been very fortunate in procuring new Orchids of exceptionally distinct character, and one of their most recent acquisitions is the *Cypripedium* which has been named in honour of the Right Hon. Joseph Chamberlain, who is well known in the horticultural world as an admirer of Orchids. The consignment of 500 plants sold some days ago in Messrs. Protheroe & Morris's Auction Rooms, Cheapside, was received from the Eastern Tropics, but the exact locality has not yet been divulged. In habit *C. Chamberlainianum* is wonderfully distinct from all other species hitherto introduced from the Asiatic tropics, as the long scapes are densely set with flowers, as many as thirty having been borne on the dried spikes sent with the plants. The flowers have a peculiarly neat compact appearance, the dorsal sepal of a soft yellowish white, streaked with deep purple, and dotted with a similar tint at the base. The labellum is white or pale, dotted with rose, and the short straight twisted petals are spotted and tinged with crimson. This *Cypripedium*, besides having all the characters of a useful garden plant, will probably become the parent of a distinct race of hybrids.

The plants sold were in good condition, and realised prices ranging from £10 downwards.



EVENTS OF THE WEEK.—The spring Shows are now commencing. That at Manchester was held on Tuesday and Wednesday last. The Preston and Fulwood Show opened yesterday, and continues to-day. The Royal Horticultural Society's Committees meet on Tuesday next, March 22nd, when a good gathering is expected, as intimated in another paragraph. On Wednesday, March 23rd, the Royal Botanic Society's first Show of the year will be held in the Regent's Park Gardens, and on Saturday of the same week—i.e., March 26th, the Crystal Palace spring Show will be held. Sales of Orchids are advertised by Messrs. Protheroe and Morris for March 18th, March 22nd, and March 25th; sales of miscellaneous plants taking place on March 21st and 23rd.

— THE WEATHER IN THE SOUTH has greatly improved within the past few days; the snow, which remained so long for the time of year, was rapidly dispersed by heavy showers, and bright sunny weather followed. With a continuance of this a speedy change will be effected in the appearance of gardens.

— THE next meeting of the ROYAL HORTICULTURAL SOCIETY, in the Drill Hall, James Street, Victoria Street, Westminster, will be on Tuesday, March 22nd. Besides the Floral, Fruit, and Orchid Committees, the Narcissus Committee will also meet for the first time this year for the purpose of adjudicating on Narcissi and Daffodils, of which there will in all probability be a fine display, in addition to other spring bulbs. At three o'clock Mr. C. Ross will give a paper on the "Cultivation of Melons."

— THE BIRMINGHAM GARDENERS' ASSOCIATION.—At the last meeting Mr. H. Dunkin, gardener to the Earl of Warwick, Warwick Castle, read a paper on "Modern Gardening," reviewing the progress of horticulture for a long number of years, and of the advancement made in the culture of fruits and plants, and influence for good of our horticultural exhibitions. The great hardships and risks incurred by the collectors of new and rare plants were pointed out, and excellent advice was given to the younger gardeners to obtain as far as possible a knowledge of geometry, chemistry, and botany. A hearty vote of thanks was accorded to Mr. Dunkin.

— THE NATIONAL CHRYSANTHEMUM SOCIETY.—According to a notification that reached us after the publication of our last issue, and consequently too late for us to make any announcement, the meeting of the members of this Society was held on Tuesday night. Not having any ticket or invitation to attend the meeting, the Secretary has been informed that any report that may be forwarded will be readily inserted.

— GARDENING APPOINTMENTS.—Messrs. John Laing & Sons request us to announce the following appointments—Mr. J. Hughes, lately with H. F. M. Paravicini, Esq., Heathfield, Ascot, as head gardener to A. K. B. Knight, Esq., Downton Castle, Ludlow, Salop. Mr. W. Morgan, late foreman at Addington Manor, Winslow, as head gardener to A. Wolton, Esq., The Homestead, Croydon.

— THE MIDLAND COUNTIES' PANSY SOCIETY.—The second annual Exhibition of this Society is fixed for June 9th in Birmingham, and the schedule of prizes has just been issued, and all classes of cultivators have been studied, even growers who have never yet won a prize. There are thirty-three classes and good prizes, and some classes are open to the United Kingdom. The Society gives a handsome gold medal as a first prize for twenty-four blooms of new varieties. Schedules can be obtained from the Hon. Sec., Mr. W. Dean, Dolphin Road, Spark-hill, Birmingham.

— HORTICULTURAL CLUB.—The usual monthly dinner and conversation were held on Tuesday, March 8th, at the rooms, Hotel Windsor, Victoria Street, Westminster. The chair was occupied by Mr. Harry J. Veitch, Vice-Chairman of the Club, who was supported by the Rev. F. H. Gall, Rev. — Pratt, Messrs. A. J. Pearson, C. E. Pearson, Cousens, H. Williams, Harry Turner, W. H. Williams, W. Soper, C. T. Druery, Joseph Cheal, John Martin, George Bunyard, Arthur J. Veitch, W. Marshall, W. H. Fowler, &c. A paper was read by Mr. W. Soper, which ranged over a variety of subjects connected with horticulture, and which gave rise to a very interesting discussion, and a hope was expressed that at some future time Mr. Soper would speak on the subject of charity in its bearing on horticulture. Messrs. H. Williams, H. Selge Leonard, John Martin, Arthur J. Veitch, Stuart Low, Valentine E. Low, George Gordon, and H. E. Milner, have been elected members.

— FERTILISING TOMATOES.—At the recent meeting of the Liverpool Horticultural Association, at which Mr. Stoney read his excellent paper on Tomatoes, Mr. R. W. Ker, Aigburth Nursery, in speaking of the different forms of fruit to be found on a Tomato plant, where some were of splendid shape, whilst others were corrugated and deformed, asked if it arose from imperfect fertilisation. He said he was not competent to speak from experience, but the thought had often crossed his mind, hence his reason for asking. In my notes of the meeting I purposely withheld this, thinking it might lead to an interesting discussion amongst the readers of the Journal on a most important subject. If by artificial fertilisation a greater number of handsome fruits could be obtained, there are many gardeners, I am sure, would be glad to try it. Would any of your readers who have experimented in this direction kindly state the results?—R. P. R.

— SLUGS AND THE FROST.—It is not often slugs are caught napping, and I heartily wish it were otherwise; but does the fact of their surviving under a board half an inch thick during the keenest frost prove their excessive hardness? I think not, and must, therefore, beg to differ from "W. T." (page 164). If he had found them alive under a slate or tile there would have been some point in his argument, but wood being to a great extent non-conducting, enclosed the natural warmth of the ground for the benefit of the slugs. Whatever may be the case elsewhere, I am positive fewer slugs than usual are alive at the present time in the gardens under my charge, and the long spell of dry wintry weather will have also greatly assisted in keeping them from increasing in numbers. Ducks, notably the small wild ones, are certainly of great assistance in destroying slugs, and I have spent many a pleasant five minutes in watching their movements. They must, however, be watched closely for reasons other than enjoyment, as by the time they are half grown they like the taste of green food, and may soon spoil Lettuces, Asparagus, and anything else tender. They are also very fond of huddling together on beds of Pinks, Carnations, and such like, and their tracks are objectionable. Fresh broods should, therefore, be introduced every few days, the mother hen being duly confined to a coop, and those becoming dangerously large turned out of the garden.—I.

— **PARCEL POST BOXES.**—I should be glad if some maker of light wood parcel post boxes for cut flowers would advertise them in the *Journal of Horticulture*.—SOUTH DEVON.

— **BRIGHTON AND SUSSEX HORTICULTURAL ASSOCIATION.**—Mr. E. Carpenter writes to say that, in addition to the three Shows referred to in a recent issue of the *Journal*, an autumn Exhibition will be held on August 24th and 25th.

— **A LARGE collection of FLORISTS' TULIPS** is said to be in the possession of M. Follet Rivolet, Villefranche, France, consisting of 20,000 bulbs, in, at the least, 6000 varieties. There is, no doubt, a large number of seedlings amongst them, many, probably, not worth preserving in a choice collection.

— **A NEW BEGONIA**, named *Gloire de Lorraine*, was exhibited by MM. Lemoine et Fils, of Nancy, at a recent meeting of the National Horticultural Society of France. It is the result of a cross between *B. socotrana* and *B. weltoniensis*, and is described as being covered with beautiful small soft rose-coloured flowers. A certificate of merit was awarded. It is not to be sent out till the end of the year.

— **ZAUSCHNERIA CALIFORNICA.**—If "D., Deal," would plant this Californian Fuchsia in the sunniest spot on his rockery he can find and in rather shallow soil I do not think he will find much difficulty in getting it to bloom. It never fails to do so in such a position on the top of the rockery here. We have a good show of its bright coloured flowers when the bulk of the ordinary rock plants are past.—E. MOLYNEUX, *Hants*.

— **FORCED RHUBARB.**—Although gardeners are well acquainted with the different modes of forcing Rhubarb, I am not aware whether they agree that there is much difference in the quality of Rhubarb forced on shelves in a forcing house and that in the ground covered with boxes or barrels, and these again well protected with stable manure. My own opinion is the latter is much superior both in flavour and substance, and as quality ought to be the prime object aimed at, especially for private establishments, the subject might be discussed with advantage.—W. T.

— **FRUIT FROM SOUTH AFRICA.**—The Union Steamship Company's R.M.S. "Mexican," which arrived at Southampton on the 6th inst., brought a further consignment of fruit from South Africa, consisting of Grapes, Pears, Apples, and Melons. This fruit was placed on sale at Covent Garden Market on Wednesday, the 9th inst., when the Grapes realised the highest prices yet obtained for importations from South Africa, boxes containing about 20 lbs. fetching 15s. each. The Apples and Pears turned out in first-class condition, boxes containing thirty to thirty-five of the former realising 7s. 6d., the Pears also obtaining high prices, one case of forty-two being sold for 34s. The Melons realised about 3s. 6d. per box.

— **THE EFFECTS OF MISTLETOE ON APPLE TREES.**—The prevalent notion that the MISTLETOE is injurious to the Apple or other tree on which it grows is disputed by Dr. G. Bonnier, the Professor of Botany at the Paris Sorbonne, who maintains not only that this is not the case, but that it is actually beneficial to its host, the relationship being not one of simple parasitism, but rather one of symbiosis. He determined from a series of observations on the increase in the dry weight of the leaves that, while in summer the Mistletoe derives a large portion of its nutriment from the host, in winter these conditions are reversed, and the increase in weight of the Mistletoe is less than the amount of carbon which it has obtained from the atmosphere—in other words, that it gives up to its host a portion of its assimilated substance.—(*Nature*.)

— **ENGLISH WONDER PEA.**—Messrs. Cannell & Sons are introducing a new Pea under the above name, which I think will be found to be a decided acquisition. It was raised at Kenilworth, Warwickshire, by a Mr. Tipping, a gardener who has for many years devoted attention to hybridising Peas, and raised "William the Conqueror," "Early Bird," and I think one other sort well known now in the district, having been taken in hand and introduced by Mr. Burbury. English Wonder is an improvement on American Wonder, although I think the latter has nothing to do with the parentage. I saw it growing last season in the gardens of Stoneleigh Abbey, and Mr. Beddard thought highly of it. It is very early, very dwarf, pod, quality, and cropping good; and where very early Peas are grown it will be valuable.—W. DEAN.

— **THE WEATHER IN IRELAND.**—During the past week the thermometer has registered from 10° to 18° of frost, and about 9 inches of snow has fallen. Peas are as yet safe, being protected by Fir branches. I have known Peas stand 15° of frost, and Cauliflowers 10°, unprotected.—S. SCOTT, *Rathmore, near Belfast*.

— **THE WEATHER IN SCOTLAND.**—The week of the 7th to the 14th inst. has been very frosty throughout, with occasional showers of snow. The hills all round are white to the base, the low grounds mostly clear. On two mornings 12° frost were recorded, and 17° on the morning of the 10th. Most days have been clear and bright.—B. D., *South Perthshire*.

— **THE WEATHER IN SCOTLAND.**—Eight miles south from Glasgow the week ending 11th March was wintry. On the mornings of the 5th, 6th, 7th, 8th, 9th, 10th and 11th the temperature was respectively 10°, 27°, 20°, 15°, 20°, 27°, and 21°. On several days it rose to 40°, but on four it never exceeded 32°. Snow fell to a depth of 1 inch on the 7th, and another fall of 3 inches followed on the 10th. Growth is at a standstill.

— **THE WEATHER IN LANCASHIRE.**—Perhaps you may be interested to know how severe the weather is here. Twice this year has the thermometer (4 feet from the ground) registered below zero, this morning (March 12th) being 2° below, or 34° of frost. On the 19th of February it was 6° below zero, making 38° of frost. We have also a very deep covering of snow.—J. LAVERACK, *The Gardens, Gisburne Park, near Clitheroe*.

— **WEATHER AT LIVERPOOL.**—Never since 1886 have we experienced such severe weather as we have had for the week ending March 14th. Frost, which completely suspended outside work, has been continuous. On Wednesday evening and early on Thursday morning we had a fall of snow which covered the ground to a depth of 6 or 8 inches. The wind blowing from the N.E. and N.W. has been bitterly cold, and at present there is little hope of any change for the better. The night temperatures have been—9th, 20°; 10th, 22°; 11th, 16°; 12th, 12°; 13th, 21°; 14th, 19°.—R. P. R.

— **DOUBLE PRIMULAS.**—When it becomes better known how easily these charming flowers can be raised from seed we shall see them grown in greater profusion. Their usefulness for many purposes, where the single varieties cannot be used, is indisputable, and if a good strain is bought there is little fear of many turning out single flowers. For wreaths the whites are indispensable, whilst other colours may be used with excellent effect in house decoration, &c. The sorts we have grown this season are Sutton's Double White and Double Scarlet; the latter by its striking colour and the unique appearance of its heads of rosette flowers make it quite a favourite. Double Primulas are remarkable for their free-flowering and lasting properties. I find they endure more heat than the singles, and if kept near the glass the flowers are increased in substance. To those who want cut flowers in variety throughout the winter I say, Indulge, if possible, in one or two packets of seed of double Primulas.—R. P. R.

— **AT a meeting of the ROYAL BOTANIC SOCIETY** lately, Dr. R. C. A. Prior presented ripe seeds of *Araucaria imbricata*, the Monkey-puzzle tree of Chili, collected from a large tree growing in the open air at Corsham, Wilts. He mentioned that in this country the plant, though common, seldom ripens its seeds. It was first introduced here 100 years ago by Mr. Menzies, a Scotch botanist, who accompanied Vancouver's expedition in search of a passage between the Atlantic and Pacific Oceans. In returning from their attempt they put in at Valparaiso, and were hospitably entertained by the Viceroy of Chili. While dessert was on the table Menzies observed some nuts he had not seen before. Instead of eating his share he saved them, and taking a box of soil back with him on board ship succeeded in raising five plants, which he brought to England, and these formed the stock from which most of the large trees now growing in various parts of the country have sprung. At a subsequent meeting, Mr. J. Bell Sedgwick in the chair, the Secretary announced the safe arrival at the Gardens of a number of young plants of the Mangrove from Colombo, remarking that though common enough in the Mangrove swamps of the tropics, this plant had never yet been grown in England, though many attempts had been made by the Society and others. In the conservatory, however, the White Mangrove, a somewhat allied plant, had been growing for the last eight years, but the rate of growth was very slow, and the plant appeared very delicate.

— **DEATH OF MR. EDWARD BANNER.**—By the death of the late Mr. Edward Banner, which took place on Sunday, March 6th, at Blacklow House, Roby, one of the most prominent of a family well known for their kindly interest on behalf of all charitable institutions in the City of Liverpool has passed away. As a thorough enthusiast in horticulture the deceased gentleman was always to the front. His knowledge was not merely theoretical, for when quite young he won many prizes for plants he had himself tended, and in later years he used to recount with pride his successes of those earlier days. Widely read there was scarcely any horticultural work which he had not studied, and it has never been my lot to converse with any gentleman better versed in the work of horticulture. The garden party, which he gave annually for some years past at his residence, was alike appreciated by rich and poor. All surplus flowers, fruits, and vegetables were sent to the sick and suffering in the various hospitals and institutions in Liverpool. To a strict, but ever kind, employer I pay this last tribute, with the hope that you will kindly allow me space for these few lines in the Journal which he read from its infancy to within the past few weeks. If anything could exceed his love for all that was beautiful in the garden it was his love for little children. He was laid to rest in the quiet little churchyard of Roby amidst every expression of regret from sorrowing friends and relations, most of whom had sent beautiful floral tributes to his memory.—R. PINNINGTON.

— **GARDENERS' WAGES.**—At the Exeter County Court recently the case of Parker v. Freeman was heard. Mr. Orchard was for the plaintiff, Joseph Parker, a gardener, of 9, Park Road, Longbrook Street, Exeter; and Mr. Crompton was for the defendant, Mr. J. Freeman, gentleman, of The Grange, Withycombe. The claim was for £4, being four weeks wages in lieu of notice at £1 per week. In October last the defendant answered an advertisement inserted in a newspaper by the plaintiff, and in the result the plaintiff was engaged as gardener to the defendant at £1 per week, and he was also to have the use of a cottage and to receive certain vegetables. He remained in the defendant's service until January 11th, on which day the defendant went to plaintiff and ordered him to prune the fruit trees in the garden. There was snow on the ground at the time, and the plaintiff said he would not prune the trees for anybody. Some words passed between the parties, and in the end the defendant told the plaintiff to leave. This the plaintiff did, remarking that he would make the defendant pay for it. Verdict for the plaintiff for the amount claimed, with costs.

— **ST. ANN'S AND NOTTINGHAM HORTICULTURAL SOCIETY.**—The annual meeting was held at the Sir Rowland Hill, Hunger Hill Road, Nottingham, Councillor Dr. Brown Sim in the chair. In consequence of the County Council meetings being held at the same time the attendance was not so large as usual. The Secretary (Mr. Harry Bayres) read the thirty-first annual report, which, after describing the annual Show, proceeded to state that the monthly Shows had progressed in the number of exhibits, in the quality, and in the attendance of visitors. The presence of Mr. Justice Williams at the Assizes at Nottingham, accompanied by Lady Williams, was the occasion for the presentation of a bouquet to the latter by a deputation from the Society. Lady Williams expressed her thanks, and visited the Rose gardens, with which she was highly pleased. A welcome addition of new subscribers, and additional contributions from old ones, had more than counterbalanced the loss of those who from bad trade and other circumstances had been obliged to withdraw. Having cleared off the old debt, and with a balance in hand, the Committee were encouraged to still greater efforts, believing that in a town and neighbourhood like Nottingham, so devoted to horticultural pursuits, a larger Show was needed to develop the latent energies of many who ought to become exhibitors. Increased support was asked for to enable the Society to maintain their supremacy as the leading amateur working men's floral and horticultural society of England. The Chairman, in moving the adoption of the report and statement of accounts, said the Society was to be congratulated upon having had such a successful year. From whatever point it was regarded, the Society had made considerable progress. The monthly Shows had been well maintained, and had been of exceptional interest, and if they were kept up to their present position they would do good and be worthy of support during the coming season. The annual Show was highly successful. The open classes for plants invested it with a charm and an advantage which the St. Ann's Society never before enjoyed. They had not only been able to pay current accounts, but outstanding liabilities also. They should endeavour to secure a Show of the same high class as the last one, and if it was possible for the Secretary to

arrange with the clerk of the weather to hold it under similarly favourable circumstances he should be instructed to do so. The income for the year had been £212 7s. 2½d., and there had been an expenditure of about £206, the balance in hand being £5 9s. 6d. Considering that the Society began the year with a deficit, that statement was highly satisfactory. Mr. T. Lowe seconded, and the motion was agreed to. Mr. W. H. Booth was unanimously elected President. On the motion of Mr. J. Jago, seconded by Mr. Franks, the proceedings were then adjourned for a week for the transaction of the remainder of the business, the next monthly Show being fixed for the first Wednesday in April, when the certificates will be awarded to the successful exhibitors during the past year. A vote of thanks was accorded to Dr. Sim for presiding.

— **SAXIFRAGA CRASSIFOLIA.**—This hardy perennial is most useful for growing in pots, especially in places where a continuous supply of flowers has to be maintained during the winter and spring months from comparatively cool houses. Plants potted from the open border in October will generally flower well during the following February, when their panicles of pink flowers are valuable for cutting. The plants are also well adapted for room embellishment, and last a long time in perfection. Single crowns placed into 4-inch pots are useful for arranging in jardinetts, but the best effect is produced by potting clumps into 8 and 10-inch pots, and using them singly in vases.—H. D.

— **THE East Anglian Times** states that the course of lectures on "COTTAGE GARDENING," given by Mr. G. Jordan, gardener to the Rev. H. Berners, Harkstead Rectory, Ipswich, in connection with the technical scheme of the East Suffolk County Council, came to a close at Stutton on Saturday. The members of the class have been very regular and attentive during the course, and have expressed themselves highly satisfied with the practical hints given by the instructor. At the meeting on Saturday the following resolution was unanimously passed:—"We, the members of the Stutton Horticultural Class, express our thanks to the Technical Committee of the East Suffolk County Council for providing us during the winter season with a course of twelve lessons on cottage gardening, given by Mr. Jordan, a very courteous, efficient, and practical teacher." This was signed by the Hon. and Rev. W. Ponsonby, Mr. Richard Gladwell, and Mr. Findley Baker, on behalf of the meeting.

— **PLANTING LARGE TREES AT CHICAGO.**—To the Department of Horticulture belongs the distinction of the first exhibit installed for the World's Columbian Exposition. Mr. P. S. Peterson, a nurseryman of Rose Hill, Chicago, has during the past week planted six trees on the grounds near the horticultural building as a permanent exhibit, and as a practical illustration of the successful methods of transplanting large ornamental trees. They are an Elm, 50 feet high and 2 feet in diameter, commemorative of General Sherman, brought from the woods in 1876, then fifty years old, and planted on the nursery grounds at Rose Hill; a Hackberry, 40 feet high and 2 feet in diameter, commemorative of General Grant, also transplanted from the woods in 1876; a Linden, 40 feet high and 18 inches bole; a Willow 30 feet high and 30 feet spread; a Sugar Maple, 40 feet high and 10 foot stem; an Ash, 35 feet high and 14 foot stem. It required a force of twenty-two men and twelve horses to transplant the trees, and the cost of the work was about 700 dols.—J. M. SAMUELS, *Chief, Department of Horticulture.*

— **STORING TUBEROUS BEGONIAS.**—In former years we were in the habit of removing the tubers of our Tuberous Begonias from the pots in which they had grown as soon as the foliage and stems had died down naturally, storing them in sand in the Mushroom house, where they kept pretty well. In the last two seasons we have altered our practice in this respect. Instead of removing the tubers from the pots they have been allowed to remain in them, gradually withholding water from the roots as the plants went out of flower, at which time they were removed to the cool end of the Peach house, air being freely admitted night and day. When the foliage and stems decayed no more water was given the plants, and the pots were stacked in a heap in such a manner that the soil could not very well receive water during the winter. The site selected is at the bottom of the Peach border, and, the house being wide, a space is left next the path, which has not yet been filled up with soil. This being damp and secure from frost proved a capital spot for the purpose. We have potted the tubers, and in removing them from the soil in which they grew found them in a perfectly fresh condition, no sign of decay having taken place even in old tubers which we have grown now for at least eight years.—S. H.

— FRUIT IN NEW SOUTH WALES.—An important conference of fruit growers was held last year in Sydney, the chair being occupied by the Hon. Sydney Smith, Minister of Mines and Agriculture in New South Wales. It lasted several days, and the report of the proceedings, which has now been issued, ought to be of great service to fruit growers in all parts of the colony. The President, in his concluding speech, said the Government were both proud and anxious to assist the agriculturists of the country. All that was required was the co-operation and assistance of those engaged in the industry, in order that they might know in what direction this assistance would be most useful. He felt sure a great deal of good would come from the discussion during the conference, and he hoped the members would hold conferences in their own districts. He was most anxious to see the local agricultural societies holding meetings every month, where papers could be read and different important questions discussed, as he was certain this would do

has been paid at Burford Lodge, and at several meetings of the Royal Horticultural Society collections have been shown, including varieties or hybrids of great beauty, for which first-class certificates have been awarded by the Floral Committee. Two distinct and handsome forms sent from this collection and certificated last year are *A. burfordiense* and *A. Laingi*, the former having rich crimson nearly circular spathes 7 inches broad, each with a long white spadix; the other (*A. Laingi*) having still broader and larger white spathes, a fine contrast to *A. burfordiense* and similar forms. That of which an illustration is given in the woodcut (fig. 30)—namely, *A. Andreanum sanguineum*, is a more recent novelty, and a first-class certificate was awarded for it at the meeting of the Royal Horticultural Society on March 8th. It was derived from a cross between *A. Andreanum* and another *Anthurium*, the name of which has been lost, and is remarkable chiefly for the rich colour, "a deep blood crimson," quite unique amongst these *Anthuriums*. Apart from the bright tints of their spathes, these *Anthuriums* are



FIG. 30.—ANTHURIUM ANDREANUM SANGUINEUM (REDUCED).

good, and he sincerely hoped his suggestion would be acted upon, as they might rely upon the assistance of the Department. The Government, as they knew, had already granted pound for pound to the agricultural societies, and they were willing to do still more. On that year's estimates £5000 was set apart for national prizes throughout the whole colony, and he believed these prizes would be worth winning.

HYBRID ANTHURIUMS.

UPON several occasions we have referred to the handsome *Anthuriums* exhibited by Sir Trevor Lawrence, Bart., M.P., from Burford Lodge, Dorking, where these plants are exceedingly well grown. At one time the brilliant and useful *A. Schertzerianum* was almost the only member of the genus possessing finely coloured spathes that was to be seen in gardens. Since the introduction, however, of the distinct *A. Andreanum* some sixteen years ago an important group of seedlings has been formed, comprising crosses between the species named and others. To these special attention

notable for their noble habit and beautiful leaves, which render them at all times most conspicuous plants in groups.

During a visit to Paris some time since it was my good fortune to meet with several horticulturists of an extremely genial and enthusiastic character, and foremost amongst those, to whom I was privileged to be introduced, was M. A. de la Devansaye, President of the Angers Horticultural Society, and a highly successful amateur cultivator. M. de la Devansaye has given special attention to *Anthuriums* for a number of years, and has raised some thousands of seedlings from crosses between all the best varieties obtainable of the *A. Schertzerianum* and allied types. From these he has rigorously selected only the best and most distinct, employing these again as parents, with the result that he has secured the most diversified and beautiful series of forms that I have ever seen. *Anthurium Schertzerianum* has been in cultivation for about thirty years, and a plant from Messrs. Veitch & Sons was first certificated by the Royal Horticultural Society in 1863, and I am under the impression that M. de la Devansaye told me he has grown these plants from very shortly after their introduction. Many beautiful varieties have been imported or raised since then, but none proved so

important as the white *A. Schertzerianum* *Williamsi* or album, which was introduced about 1874, and certificated a few years later (1878) by the Royal Horticultural Society under the name of album. Everyone who was concerned with the improvement of these plants at once perceived what a valuable variety this would prove for crossing with the scarlet forms, and it is probable that several endeavoured to secure crosses in this way about the same time. M. de la Devansaye was one of the successful raisers; at Ferrières also M. Bergmann obtained a cross of the same character with remarkable red-spotted spathes which made its *début* under the name of *A. Rothschildianum*, and was certificated in London on May 11th, 1880. I am not quite sure respecting the chronological order in which these crosses flowered, whether, for instance, M. de la Devansaye had his in flower before that at Ferrières, but it is certain that he has raised numbers showing every gradation between the white *Williamsi* on the one hand to the ordinary scarlet *Schertzerianum* on the other.

Considerable differences in sizes, form, and depth of colour in the spathes had been obtained previous to the crosses described, but since then quite a large and important group of variations has been formed, exhibiting some remarkable combinations, and showing the scarlet colouring in spots, streaks, and clouding on a white ground, of an extremely diverse character. Comparatively few varieties have been selected by M. de la Devansaye for names, and amongst these the following may be noted here as the most distinct. *A. Schertzerianum* *Devansayanum* is one of the first, and the finest of these, and when shown in London by Sir Trevor Lawrence on April 13th, 1886, it was at once accorded a first-class certificate. The spathes are about 5 inches long when well grown, and heavily spotted with bright scarlet on a pure white ground, the back of the spathes being scarlet. The large size and clear definition of the spots renders this one of the most beautiful and effective of all the varieties. *Marie Thérèse* is another of the *Rothschildianum* type, with very large spathes of the well known variety *Wardi* shape, also beautifully and clearly spotted. *Madame de la Devansaye* is a distinct variety, the spathe of good shape, creamy white, relieved by bright red at the base of the spadix. *Souvenir de Versailles* has a number of fine red dots scattered over a white spathe. *Le Fresne* has a peculiarly twisted spathe heavily marked with deep red at the base of the spadix, white, spotted with red towards the tip. *Album maximum* has broad finely formed spathes, pure white, and constitutes a valuable addition to the white varieties. This made its appearance at the Temple Show in 1890, when a certificate was awarded for it. All these varieties have the same free flowering and vigorous habit of their parents, and arranged with Ferns the most useful, while many prefer the white and spotted forms for cutting to the brilliantly coloured varieties of the ordinary type.—LEWIS CASTLE.

POTTING PLANTS.

LIKE "T. W.," on page 178, I am far from agreeing with all Mr. Dunkin's remarks on the above subject, and am particularly convinced it is one of the greatest errors imaginable to pot a Palm loosely to induce free and rapid growth. Some of the finest specimens exhibited for many years at the principal western shows, and with which Mr. Dunkin is not wholly unacquainted—I allude to the grand plants of *Latania*, *Kentias*, *Areas*, &c., shown by Mr. G. Lock of Newcombes Gardens, Crediton—were among the finest examples of rapid growth and good culture that have ever come under my notice, and I can answer for the soil about their roots being made firm at potting time.

Generally speaking, for the majority I advocate firm potting of plants, although it undoubtedly necessitates far greater care in watering for some little time after, as it is then so much mischief may be, and so often is, wrought by an over-supply of water. It is far better to err a little on the dry side than to give too much water immediately after potting, the fresh soil into which the roots have not penetrated soon becoming sour and useless if kept too wet at the outset.

There are, as Mr. Dunkin remarks, some exceptions, notably *Anthuriums*, *Alocasias*, and *Caladiums*, for all of which the soil should be very loose and of as free and open a nature as it is possible to obtain. Here, again, I would mention one exception to the general rule for this class of plants, for *Alocasia macrorrhiza* variegata will be found to succeed best in a mixture of equal parts turfy loam and peat, with sand and charcoal added, and moderately firm potting. Of the three genera mentioned above, I have found *Anthuriums* require a different degree of looseness in their compost from the others, and fully one-half of the whole material for potting these beautiful plants, both foliage and flowering varieties, should consist of crocks and charcoal, in addition to half filling the pots with drainage, so that the necessary liberal supply of water may be given from the first without fear of its becoming sour and inert.

In Mr. Dunkin's article on page 178 he says he considers the practice of keeping the collars of hardwooded plants raised "not a good one," and further advocates keeping them lower than the surrounding soil. I strongly advise all growers of these most beautiful plants to

hesitate before following this advice, particularly with the delicately constitutioned *Hedearomas*, *Dracophyllum gracile*, and *Ericas* of the *Aitoniana* type of growth.

One other point in Mr. Dunkin's later article I wish to comment upon. He says, "In the case of Heaths and *Ericas* pots only one size larger often suffice." First, I would like to ask him what distinction there is between Heaths and *Ericas*. If by one size Mr. Dunkin means, as I presume he does, one inch larger in diameter, I contend that he errs in giving such advice, for with only half an inch of space between the ball of soil and the sides of the pot there is great danger of the delicate roots being severely injured by the potting stick, and also danger of leaving hollow spaces between the layers of soil, which would soon prove still more injurious, most probably fatal, by allowing the water to escape from the pots before it had penetrated the old ball of soil. Better by far is it to leave any hardwooded plant alone until it will bear a shift into a pot 2 inches larger, as it will when properly rooted, and if not in that condition it certainly does not require shifting at all.—C. LOCK, *Bristol*.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8TH.

SCIENTIFIC COMMITTEE.—D. Morris, Esq., in the chair. Present: Messrs. Elwes and Michael, Professors Green and F. Oliver, Dr. Hugo Müller, Dr. Scott, and Dr. Masters.

Adventitious Buds on Ribes.—Mr. Burbidge sent specimens of these productions on *Ribes aureum*, to show that the conjecture advanced on a former occasion, to the effect that the swellings in question were due to constriction and to the accumulation of moisture by a ligature, such as a shred, was not tenable, as in the case now sent the plant grew as a shrub without any such ligatures, and yet these swellings were produced.

Hellebores.—Dr. Müller stated that he had performed experiments similar to those detailed at a previous meeting by Mr. Burbidge, and, owing to the diversity of the results obtained, concluded that the slitting of the flower stem longitudinally had no definite relation to the length of time that the flowers remained unwithered. Dr. Scott stated that he had examined the anatomical construction of *H. niger* and *H. orientalis*, and found considerable differences between the two species. Possibly the greater amount of transpiration due to the presence of leafy bracts below the flowers of *orientalis* might have something to do with the more rapid withering of the flowers.

Two-coloured Tulip.—Dr. Masters reported that he had examined the Tulip exhibited at the last meeting, and found that the distribution of the colour was as follows:—One of the outer segments, that nearest the axis, or the posterior part of the flower, was red, the other two yellow. Two of the inner segments were half yellow, half red, the red portions being in juxtaposition with the red outer segment. Of the stamens, the three in the posterior part of the flower, that is to say, one of the outer (opposite the red sepal), and two of the inner series were completely red instead of being, as might have been expected, half red and half yellow.

Cypripedium Dayanum.—Dr. Masters reported on the specimen submitted to him at a former meeting. In this the true lip was absent, but each of the two lateral petals was partially developed in the form of a lip. The posterior stamen, A, 1, which is usually not developed in *Cypripedium* (though it is the only one present in other Orchids), was also present in a lip-like condition. The two stamens, A 1, A 2, were present in their ordinary condition. The flower in question was, therefore, partly double, and added another illustration of the probable development in the future of "races" of double Orchids.

Larvæ Destructive to Grass in Hong Kong.—From Mr. Ford came, through the Director of the Royal Gardens, Kew, specimens of the larvæ and of the perfect insect of a species of *Tinea*, reported to be very mischievous in Hong Kong. The specimens were referred to Captain Elwes for examination and report.

Hybrid Narcissi.—Rev. G. Engleheart sent flowers of a hybrid produced by the inter-fertilisation of *N. triandrus* and *N. monophyllum* var. *alba*, to show the similarity of the result obtained by the inverted crossing of the two species.

The Dyeing of Flowers.—From Mr. W. Brockbank came a large series of dried flowers, the venation of which had been rendered apparent by the action of aniline dyes. The cut ends of the flower-stalks were immersed in the fluids, so that the colouring matter was absorbed by the vascular tissue of the flowers. The results were very striking, and likely to be of use to botanists.

Plants Exhibited.—From Mr. Burbidge came *Helleborus torquatus*, from the College Botanic Garden, Dublin; *Mistletoe* from *Pyrus malus* var. *præcox*, on which it is found that the berries are produced more freely than on other trees—the foliage, on the other hand, being less well developed. These effects are analogous to those produced by grafting on a dwarfing stock. *Tellima grandiflora rubra*, remarkable for the rich red colour of the foliage, the colour being especially noticeable in winter time, so that the plant makes a good setting for bulbs. The winter coloration of the leaves of this species is analogous to that observed in some of the *Ivies*, notably the variety *atro-purpurea*, which turns nearly black in winter. A flower of the rarely seen *Dissochroma viridiflora* from the same garden was shown. It is remarkable for its green colour and the peculiar shape—between funnel-shaped and bell-shaped.

Diseases of Mountain Ash.—The Rev. W. Wilks sent a specimen, accompanied by the following letter:—"I noticed a Mountain Ash tree

with a very stout large trunk fit to carry a tree of large dimensions, but the actual tree was comparatively very small and stunted, and every twig of every branch was ended in this way, the diseased part being always downwards underneath the line of the stem bearing it. The tree at a distance looked almost like some evergreen, so densely was it crowded with these diseased parts." In the specimen the ends of the branches presented oblong or club-shaped swellings irregularly cracked on the surface, as well as deeply fissured in places. Internally it consisted of woody tissue of harder consistence than usual, the deep fissures being lined with dead wood, around which the new and harder wood was deposited. A similar condition is not very uncommon in the Hawthorn, but the determining cause is unknown, and can probably only be ascertained in the young state, which unfortunately rarely comes under observation. The deep tunnel-like cracks are suggestive of insect injury, and of subsequent efforts to repair the damage.



EARLY BUD FORMATION.

THREE years ago, if my memory serves correctly, there was a discussion in the *Journal of Horticulture* upon early bud formation in young plants of Chrysanthemums, and several correspondents were of the opinion that it was principally caused by too early propagation. I was not of that opinion then, nor am I now. With the exception of a few late varieties of Japanese, which were inserted on December 19th, 1891, no cuttings were put in before December 28th, and many varieties not before January 12th, 1892, and now we have them showing this early bud again, even those of the second and later date equally as much as the former. In the last two seasons we have been free from these early buds, but they have re-appeared. I do not think anyone may fear any difficulty about them, for on the last occasion our plants carried blooms equal to any we have ever had, and they came at the proper time for the November exhibitions. I would advise pinching out the shoot three or four joints below the bud; they are not so apt to again form another early bud, but will in most instances continue their growth until May. In my opinion it is due to atmospheric effects in the autumn and winter upon the young shoots which we take to form our cuttings.

THE BIRMINGHAM CHRYSANTHEMUM SOCIETY.

Reading the Chrysanthemum column of the *Journal* on March 10th I was much pleased to see the new departure which the Birmingham Society has ventured upon with regard to dividing their large classes. Admitting the attraction of large classes at the various exhibitions as I do, I still feel confident that greater satisfaction will be given to both exhibitors and judges alike. In small societies where the funds are not sufficient for attractive prizes a class for twenty-four blooms in an equal number of Incurved and Japanese is desirable; but when we come to national competition, it is another thing, for one exhibitor may have excellent Japanese and another equally good Incurved. This places the judges in an awkward position, for let them be ever so competent for their duties, and take all the pains they may, there is sure to be dissatisfaction if the competition is close, one exhibitor declaring his Japanese carry so much weight and another that his incurved have it easily. The classes set out in the National Society's schedule are excellent in that way. I heartily wish the Birmingham Society success in their new departure.—J. DOUGHTY.

WATFORD CHRYSANTHEMUM SOCIETY.

THE annual meeting of this Society was held recently at the Rose and Crown Hotel. Dr. A. T. Brett was voted to the chair, and there were also present Mr. D. Hill, Mr. H. Hill, Mr. Cutbush, Mr. G. Sterman, Mr. C. R. Humbert, Hon. Secretary; Mr. Beckett, Mr. Deane, Mr. Neve, and other gardeners. The report and statement of accounts was submitted to the meeting. The report said, "The sixth annual report of the Committee, which is now presented to members, will, they trust, be considered equally as satisfactory as those of previous years. The subscriptions have increased from £102 5s. to £107 19s., and the gate money taken at the doors is also £8 in excess of last year, so that notwithstanding the prize money actually paid to exhibitors shows an advance of £12, the sum of £5 5s. 4d. has been added to the reserve fund. The Show was very well attended, and was up to if not above the average in merit, the cut flowers and vegetables being especially prominent features. In the schedule for the ensuing year the Committee are of opinion that increased inducements should be given to those members in a position to exhibit groups, which are undoubtedly a great attraction to the show. The exhibition dates for 1892 will be Tuesday and Wednesday, the 1st and 2nd of November. The Committee are desirous of tendering their best thanks to the Earl of Clarendon for the loan of his magnificent group of plants, and for the interest taken by him with the Society." The balance-sheet showed receipts amounting to £268 12s. 6d., with a balance at the bank of £46 3s. 10d. A discussion ensued with regard to the Committee's

recommendations as to altering the schedule. The members of the Committee to whom the matter had been referred reported against it, and with some other modifications, it was resolved that the schedule should stand as before. The report as amended was then carried. The officers of the Society were then unanimously re-elected, and a hearty vote of thanks passed to the President, the Earl of Clarendon, for the interest he takes in the Society and the magnificent group he sends the show. Thanks were also passed to the Vice-Presidents, and to Mr. C. R. Humbert, the indefatigable Hon. Secretary. The Chairman proposed "Success to the Watford Chrysanthemum Society," which was seconded by Mr. Beckett, with a few practical remarks upon the success of the Society, due to the businesslike management of the Hon. Secretary. Mr. Beckett also moved a vote of thanks to the donors of special prizes, when Mr. Cutbush of Highgate and Barnet replied, and spoke in the highest terms of the Society's Show. After a discussion and resolution that no exhibitors should be in the proximity of the judges during the process of judging the exhibits, the meeting concluded with a very hearty vote of thanks to the Chairman.

SHEFFIELD, HALLAMSHIRE, AND WEST RIDING UNITED CHRYSANTHEMUM SOCIETY.

THE usual monthly meeting of the above was held on Wednesday, March 9th, in the Museum, Orchard Street. Mr. W. Harrow, Curator of the Sheffield Botanical Gardens, occupied the chair, and there was an extraordinary attendance of members. They were drawn together to hear a valuable paper on "The Chrysanthemum, from the First Potting to the Exhibition Board," by C. E. Shea, Esq., of Sidcup, Kent. Unfortunately Mr. Shea was not able to attend, but he sent a capable substitute in the person of Mr. H. J. Jones of Ryecroft Nurseries, Lewisham, who did full justice to the paper by an admirable delivery, and the complete manner in which he replied to points raised in discussion afterwards.

Mr. Shea's paper was full of valuable hints on every detail of Chrysanthemum culture comprised within the title of the subject. In an interesting discussion which followed Mr. Jones gave some valuable hints on keeping blooms when cut. He said they should be placed in water in which a little salt was dissolved, and kept in a cool dry dark place. Each day they remained a little of the stem should be cut away. He also referred to getting buds to time when they seemed likely to come too early. He explained this by showing that when a bud appeared too early, and it was requisite to take it, he should first take out the growth nearest the bud, leaving the others to be taken off at short intervals, until the proper time came when it was usual to take the buds of any particular variety, and then the last shoot might be removed. By this method the bud was retarded in an easy manner, and any excess of sap to it diverted into the side growths. This was called getting buds to time. In answer to an amateur's question on the probability of plants raised from the first base cuttings and those which spring up afterwards, forming buds and flowering at different times, Mr. Jones gave an example of Mons. R. Bahuant, which, to increase the stock, had been propagated from both kinds of cuttings, and amongst fifty plants he had not found six days' difference in the time of blooming.

Mr. Pidsley asked what time Mrs. Alpheus Hardy should be stopped to bloom during the first week in November. Mr. Jones advised that if Mrs. A. Hardy was stopped at all it should be done before the new year. When grown on the stopping system cuttings should be rooted as soon as possible, even, he observed, if it had to be done in the summer; then stop early, keep the plants a little on the dry side in rather poor soil, in a smallish pot, and in a warm spot; then, when you get buds, begin to feed. In America they flower this variety easily because of the warmer climate, and it grows there like a weed.

Mr. Newsham asked a question on fowl manure. How far was it safe to use it? In reply Mr. Jones said, horse manure and fowl manure were very heating. The time to use them was in cold dull weather. In hot weather give cow manure, which is cooling. Give liquid manure with care. The plants cannot take up much food at a time, and should not be dosed with the same kind every day. It should, however, be borne thoroughly in mind that it is necessary to use all liquids in a clear state, or air cannot possibly enter the soil. Plants cannot live without air at the roots, and the Chrysanthemum likes air at the roots as well as any plants living.

In proposing a resolution of thanks to Mr. Shea for his paper, and to Mr. Jones for delivering it, Mr. Newsham remarked that it was a splendid paper, and Mr. Jones had given it in an excellent manner, and he could carry back to Mr. Shea the information that this was the largest meeting ever held in connection with the Chrysanthemum Society in Sheffield. The Society was indebted to Mr. H. Broomhead for his efforts in enlisting the co-operation of Mr. Shea. In regard to the paper, he fully endorsed the remarks given to exhibitors and others, and thought such valuable advice was very important.

Mr. John Haigh seconded the resolution, saying he had listened with the greatest interest, and had found the paper most exhaustive in all important details. His remarks on potting were very valuable, pointing out as they did the importance of potting just when the plants called for it. Another little matter Mr. Shea alluded to was that of burning the old Chrysanthemum stems and adding the ashes to the soil, thus returning to it the constituents the plants required. With regard to the insects which were found upon the Chrysanthemum there was one little friend which did more good than harm, and that was the larva of the ladybird, which fed upon the green fly, and to destroy it meant destroying one of the cultivator's best friends.

Mr. Pidsley, in supporting the resolution, remarked that he could not get enough sunshine. He could only give his plants four or five hours' sunshine a day, sometimes less. He had been troubled with damping, but he attributed it to the atmosphere more than to the feeding and growing. Mr. Redmill and Mr. Hannah also supported the resolution, and it was carried unanimously.

Mr. Jones, in reply, said nothing delighted Mr. Shea more than to find that what he did in the Chrysanthemum world was appreciated. He (Mr. Jones) was delighted with his visit to Sheffield. In reply to Mr. Pidsley, Mr. Jones said he recommended in situations where little sun could be obtained, the growing of more incurved varieties, and he advised all cultivators during a cool, sunless season to take special note of the varieties which did the best, both Japanese and incurved, and grow those only in the future. After a vote of thanks had been passed to Mr. Broomhead for introducing Mr. Shea to Sheffield, the thanks of the meeting were accorded to Mr. Harrow for presiding, and the meeting terminated.

PEAS FOR EARLY USE.

LEST the severe weather should prove disastrous to any portion of the crop in the open we have sown approved varieties in shallow cutting boxes, using a light rich soil over a layer of short manure, inserting five or six peas 3 inches apart, placing the boxes in a forcing house. As soon as the plants appear they will be transferred to a colder house, and being duly hardened they will be transplanted on the first favourable occasion. Should any blank be then observed in the existing rows—which look somewhat sad at present—they will be made good, and the remainder be transplanted in rows by themselves, thereby securing our early gatherings and a good succession of Green Peas about the usual time, notwithstanding any mishap that may have previously occurred. The bunches of Peas will be transplanted with manure and soil adhering to the roots, and shelter afforded. The exercise of timely forethought in the direction indicated in a great measure enables the cultivator, whose aim it is to send gatherings of Green Peas to table as early in the season as possible, not to be entirely thwarted in his object by sudden and adverse climatic conditions.—H. W. WARD.

ROTATION OF CROPS.

THE object and study of everybody in possession of a garden and allotment should be how to render the same as productive and profitable as possible. This can only be accomplished by dressing the ground liberally with the best manure at command, good cultivation, and by giving due consideration to the requirements of and the conditions under which each and every kind of crop cultivated succeeds best, noting at the same time the particular plots of ground which yield the best results, together with the special requirements and character of the crops immediately preceding and following it. Therefore the cultivator must have a plan of operation in his mind's eye to go by, as chance preparation of the soil for a haphazard crop is a *modus operandi* not to be depended upon. On the contrary, in trenching a piece of ground he should make up his mind as to the kind of vegetables he intends growing in it the four following years. Thus, first year, Cabbage, Brussels Sprouts, and Cauliflower (with rows of Peas and Beans between the latter); second year, early and second early varieties of Potatoes (simply removing the stumps and digging the ground without manuring it) which will be taken up in time to admit of a crop of Spinach, Turnips, Lettuce, and such-like quick-growing, surface-rooting crops being taken off the same ground that year; third year (digging a good dressing of short manure well into the ground beforehand), Parsnips, Carrots, Beetroot, and Celery; fourth year, Broccoli, Winter Greens, Savoys (with rows of Peas and Beans between), Leeks and Onions, the latter crop being sown in a plot previously cropped with Celery. Plantations of Rhubarb, Asparagus, Seakale, and Strawberries, which remain on the same piece of ground for three or more years, should be made in liberally manured and deeply trenched ground which had been previously cropped with any of the above mentioned vegetables.—H. W. W.

LANGLEYBURY.

LANGLEYBURY, the Hertfordshire seat of E. H. Lloyd, Esq., is situated about four miles from Watford, in the postal district of King's Langley. The extensive and well-kept grounds, rich in Conifers and rare shrubs, surround the mansion, a massive brick building with stone facings extending from the frontage along the brow of a gently undulating hill to the high road and village of Huntonbridge.

Among the many fine trees in the grounds we noticed a twin Cedar, covering a large amount of ground, though half was torn away during a gale a few years since. Under the remaining portion of this tree a party of twenty or thirty persons could picnic with comfort. Close by, and fitting companion to this venerable, but maimed, giant, are a number of white Robinias, also of large proportions, their branches trained over a walk, and kept up by wooden supports on the opposite side. These trees form a canopy of delicate green foliage and cool promenade during the hot days of summer. At the time of our last visit, the middle of February, their bare stems glistening in the feeble rays of the sun almost vied with the snow in whiteness, and had a peculiar beauty all their own.

The conservatory, a narrow but well lighted structure, occupies a large portion of one side of the mansion. Flowering plants seem to like

their quarters here, receiving, as they do, plenty of light, and staged within a few feet of the glass. Among the good things in this house were a number of plants of *Cœlogyne cristata*, superbly flowered. *Primula obconica* was conspicuous. This *Primula* is a perpetual bloomer at Langleybury, and the large number of its delicately tinted flowers at this dull time of the year renders it one of the most useful and economical of flowering plants. Azaleas, *Primulas*, *Cinerarias*, and a host of miscellaneous flowering plants, together with Ferns, Palms, and other fine-foliage plants, made up a gay and withal effective arrangement. Leaving the conservatory on the left we came to a small lawn hemmed in by masonry. Here is a fine healthy specimen of *Pinus nobilis*, but sadly misplaced owing to the small dimensions of the site; but we must state in justice to Mr. Smith, the able gardener, that this tree was planted before he took charge.

In the late vinery Grapes were still hanging, a cane or two of Golden Queen, a good midseason Grape, being included. Though the crop on the Queen rods finished well, the berries were quite shrivelled, and the bunches on a rod of Alicante grafted on the Queen stock were in much the same state. It would appear that the Golden Queen has not sufficient stamina to support a crop for so long a period. This variety is to be replaced. The first and second early vineries were heavily stocked with bedding and other plants—a necessary evil. In one of the houses were a few Tomato plants carrying ripe fruit. Mr. Smith raises all his Tomato plants from cuttings, and depends largely upon the reliable variety, the Old Large Red. Fortunately for him, the disease has not yet made its appearance among his stock. In one of the vineries we noticed a number of the white *Ageratum Purity*, which will shortly yield a quantity of flowers.

The Peaches were promising, Royal George and Condor—in separate houses—being the varieties thought most of. In a mixed house were some good Orange bushes laden with ripe fruit, while the roof, once occupied by the renowned *Maréchal Niel*, from which were cut upwards of 2000 buds in a month, but now on the decline, is shared by the yellow Banksian and others.

Orchids are represented by *Cœlogynes*, *Cattleyas*, and *Cypripediums*; *Cœlogyne cristata*, Chatsworth var., and *C. fuscescens* being in quantity and covered with flowers, the pendulous racemes of the latter species being upwards of a foot in length. In the stove we noticed a grand example of *Dipladenia hybrida*, the original plant, raised some twenty years ago by Mr. Smith from *D. amabilis*, itself a hybrid, fertilised with the pollen of *D. superba*. A number of *Acalypha musaica* were being prepared for bedding out, to which purpose they are said to be admirably suited. They are employed much the same way as *Coleus Verschaffelti*, of the improved form of which there is also a large stock.

The Mushroom house—a boon when green vegetables are scarce—contained a large bed in full bearing, part of the alley being occupied by Seakale. The snow prevented more than a cursory glance being taken of the kitchen garden, which appeared to be in keeping with the rest of the establishment, and highly creditable to the management.

Mr. Smith, who is in charge of the extensive estate as well as the garden and home farm, has served upwards of twenty years at Langleybury, and has during that time, with the encouragement of a generous and well-satisfied employer, materially improved the estate.—W. R. W.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual meeting of this excellent Society was held in the Caledonian Hotel, Adelphi, on March 14th, when Mr. Robert Cannell presided, and the attendance of members was the largest and most enthusiastic yet seen. Messrs. Arthur Veitch and G. J. Ingram (Secretary) were also present.

The following report for 1891 was duly presented and adopted. The Committee have very great pleasure in presenting the annual report and balance-sheet for 1891. A great addition has been made to the list of benefit members, making a total of 413 who paid subscriptions last year. We have again had a great deal of sickness, owing, in a large measure, to the influenza epidemic, the amount paid to sick members being £119 10s. 6d. This sum is covered by deductions of 7s. 5d. and 4s. 11d. from the two classes of members respectively. Three deaths have occurred during the year, and the amounts standing to the credit of the deceased members have been paid to their nominees. We are pleased, however, to say that the Benefit Fund has increased by about £600. The Benevolent Fund is also in a very satisfactory condition, showing an increase of nearly £140. Three honorary members died during the past year, but others have joined us, the increase in numbers being three. The management fund shows a balance of £31 1s. 9½d. The Treasurer's account is also very satisfactory, and the best thanks of the members are due to him for his valuable services. The annual dinner was again a success, being presided over by H. J. Veitch, Esq., in the unavoidable absence of Geo. A. Dickson, Esq., who kindly sent £10 10s. towards expenses. Mr. Veitch very generously gave £25 towards the voluntary convalescent fund, and Mr. Sherwood promised £3 3s. per year for his three children towards the same fund. Mr. Baker and Mr. Ingram also gave £1 1s. each. The best thanks of the Society are due to Messrs. B. S. Williams, J. Laing, Chard, and Cannell for plants and flowers for the decoration of the hall and dinner tables, Mr. Chard's tasteful arrangements being much admired. A hearty vote of thanks is also due to the Trustees and Auditors for their valuable services.

The following members of Committee retired by rotation, but being

eligible offered themselves for re-election—viz., Messrs. C. W. Knowles, Riley Scott, E. G. Wheeler and W. Woods; two other vacancies having occurred, making six new members to elect. Six fresh members being proposed in addition to the four out-going, a poll by show of hands was taken, resulting in the election of Messrs. C. W. Knowles, R. Scott, E. G. Wheeler, and W. Woods with R. J. Chard, and W. P. Thomson. The Trustees, Auditor, and Treasurer were thanked for their past services. Secretary was also thanked and re-elected for 1892. The disbursements of the Society during 1891 in sickness, sums at death and benevolent fund, exceeded that of 1890 by £120 9s. 3½d.

ENGLISH ARBORICULTURAL SOCIETY.

A MEETING of the Council of this Society was held in the Farmers Club Room, Newcastle, recently. Mr. Coroner Graham, Durham occupied the chair, and amongst those present were—Councillor Davidson, South Shields; Mr. W. Fleming, Durham; Mr. W. Fell, Hexham; Mr. B. Cowan, South Shields; Mr. G. Cooper, Gateshead; Mr. Jos. Robson, Hexham; Mr. R. Shipley, Haydon Bridge; Mr. G. Gallie, Ravensworth Castle; Mr. R. R. Wilson, Swinton, Masham; Mr. J. F. Robinson, Burnopfield, Durham; Mr. Jos. Graham, Mr. T. Vasey, Mr. E. Lincoln, South Shields; Mr. John Hood, jun., Newcastle; Mr. John Balden, jun., Hexham; Mr. John Davidson (Secretary), Haydon Bridge, &c. The minutes of the last Council meeting were read and confirmed.

NEW MEMBERS.

The following gentlemen were elected members of the Society:—Sir Baldwin Leighton, Loton Bank, Shrewsbury; Messrs. Bayliss, Jones, and Bayliss, Cannon Street, London; Mr. T. Rothewe, Huddersfield; Mr. A. Shaw, Huddersfield; Mr. J. Tait, Richmond; Messrs. Sander and Co., West Hartlepool; Mr. W. Clapham, Stockport; Mr. Ed. Joicey, Blenkinsopp Hall, Haltwhistle (life member); Mr. P. McAndrew, Prudhoe; Mr. S. C. Rudman, Windlestone; Mr. Ald. Wardle, Mr. Councillor W. R. Smith, Mr. James M. Smith, and Mr. Thomas Fyall, South Shields; Mr. John Hood, jun., Newcastle.

THE ANNUAL EXCURSION.

The Secretary explained, in answer to the Chairman, that at the last meeting of the Council it was resolved to add Castle Howard and Masham to the list of places which were recommended by the annual meeting for selection by the Council as places which might be visited on the occasion of the next annual excursion, and he added that he had a letter from Lord Masham saying that the members of the Society were perfectly at liberty to visit his estate. After some consideration it was agreed to recommend to the members of Council, who will vote by proxy on the question, the following places:—Castle Howard and Masham; Woomersley Hall, Pontefract; Frystone and Byrom Hall, Ferrybridge.

COUNTY COUNCILS AND WASTE LANDS.

Mr. B. Cowan read a paper on the necessity of forming a Parliamentary Committee, with the view of promoting legislation giving power to County Councils to acquire waste lands for the purposes of tree planting. He said that the merest tyro in arboriculture did not need to be reminded that trees improved the climate, added to the rainfall, clothed the nudity of many a rugged eminence, and made our gorges and mountain passes more attractive to the wayfarer and visitor. In Northumberland alone there was a great deal of land which could never be rendered productive either by farming or spade industry, and one was led to think that Nature left them for man to finish and adorn. This applied also to waste and boggy land. A fine example of what might be accomplished in this way was furnished by the improvements effected by Lord Armstrong at Craggside. Mr. Cowan gave statistics as to the woodlands in Northumberland and Durham, and made a series of suggestions as to the action which should be taken by the Society with the view of having our waste lands, bogs, morasses, ravines, and gorges clothed with timber—an operation which would provide work for the rural population, and assist in arresting the migration from country to town.

The Chairman suggested that attention should be directed to the necessity of forming a school of forestry in England. A great deal of care was taken by the Government of this country of the forests in India, and now and again they had to send out officers sufficiently instructed to look after these extensive forests. But where had these gentlemen got their education? Why, they were sent abroad to schools of forestry in France or Germany to be instructed in that which surely could be taught at home. If it was necessary to send our cadets abroad to learn their business, he thought it was really about time that such a system was brought to an end by the establishment of a school of forestry in England.

The Secretary said he supposed Mr. Cowan included in his definition of waste lands not only land that was common land, such as waysides or open spaces in the vicinity of towns, but land already in the hands of private owners, and that was lying unproductive? Mr. Cowan replied in the affirmative.

Mr. Robinson took it that Mr. Cowan meant that County Councils should have power to purchase from the present proprietors lands which were unproductive, and plant them with trees. Supposing that were done, to whom was the timber to belong? The Chairman: It will be the property of the county, you know, and it will come in aid of the rates when the trees grow. Mr. Robinson said he would like to suggest that a strong recommendation be sent to the Government, urging them

to push forward the question of the formation of a Board of Forestry, as recommended by the Committee on Forestry, which sat two or three years ago. Those who obtained the report of that Committee would remember that it decidedly advocated the formation of a Board of Forestry, and the English Arboricultural Society was suggested as sending delegates to it.

Mr. Wm. Fell said it was a disgrace to us as a nation that our young men should have had to be sent abroad to learn forestry. They had as



FIG. 31.—CYPRIPEDIUM CREON. (See page 197.)

good practical foresters in Northumberland, no doubt, as could be found anywhere; but they had not been educated in the theory of forestry, and had not been able, consequently, to pass the examinations necessary to obtain the foreign appointments that were worth having. That was an unfortunate condition of matters which Mr. Cowan's paper that day would no doubt tend to alleviate if its recommendations were carried out. In England only 4 per cent. of land was under forest. It was 40 per cent. in Russia; 34 per cent., Sweden; 29½ per cent., Norway; 26 per cent., Germany; 22 per cent., Turkey; 18 per cent., Switzerland; 14 per cent., Greece; 7 per cent., Spain; 7 per cent., Belgium; 7 per cent., Holland; 4 per cent., Portugal; and 3½ per cent., Denmark. The lectures that were being given at Hexham under the auspices of the County Council would to a great extent rectify this condition of things. These lectures had been attended by fifty-one students, and he thought that was a handsome number. He moved a vote of thanks to Mr. Cowan for his valuable paper. Mr. Balden seconded the motion, which was unanimously agreed to.

Considerable discussion followed, in which Councillor Davidson, Messrs. Balden, Fell, Shipley, and others took part, and ultimately the following resolution was unanimously adopted, on the motion of Mr. Balden, seconded by Mr. Fell:—"That it is desirable in the interests of forestry to call the attention of the Board of Agriculture to the necessity of granting powers to County Councils to acquire suitable lands to be set apart for the purposes of reforestation." On the motion of Mr. Cowan, seconded by Mr. Davidson, the Council were appointed a Parliamentary Committee, to take such action as they may deem expedient to carry out the object of the resolution. The next Council meeting was fixed to be held at Newcastle.—(Hexham Herald.)



HARDY FRUIT GARDEN.

GRAFTING FRUIT TREES.—Where old, but healthy, though perhaps fruitless Apple and Pear trees exist, or those which bear but indifferent or inferior varieties of fruit, they should have their branches headed

down to convenient heights, and healthy grafts of strong and vigorous, yet better varieties, inserted just when the sap begins moving in the trees, causing an active circulation of the vital fluids essential to the success of the operation. The scions having been secured some time previously, and kept dormant in a cool position, will be in the right condition if firm and plump.

METHODS OF GRAFTING.—The system of grafting usually adopted when improving large trees is that known as crown grafting, and perhaps this method presents advantages which no other does. Several scions may be inserted on one large stock, or as many as can be accommodated upon it at 2 inches apart. Branches may be headed down to almost any diameter and successfully worked, but the usual plan where crown grafting is adopted is to cut down to a point where three grafts can be inserted; but of course lesser branches can be selected where two or one only can be received. Still less branches may be grafted, but in this case the system should be that known as whip grafting, when the stock and scion to be worked are almost, if not quite, of equal girth.

WHEN TO GRAFT.—The latter end of March or early in April, according to the forwardness of the trees and the prevalence of moderately mild and moist weather, but not in cutting and drying east winds, is the time best adapted for grafting, as then the alburnum separates easily from the bark, and the sap within the stock is active. Moreover, mild weather favours the work, the success of which depends in a great measure upon the expedition with which it is performed. The stocks in most cases should be headed down and the grafts inserted at the same time, because not only can the operation be performed more easily, but the parts are quite fresh for manipulation, and there is a surer prospect of a lasting union taking place. In shortening spreading branches undercuts are usually necessary to prevent splitting.

PREPARING STOCKS AND SCIONS.—The scions must be healthy, well ripened growths of the previous year, avoiding thick gross shoots, containing three or four good buds each when they have been prepared. The central part of a shoot is rightly considered to be the most suitable in the case of Apples and Pears, but if Peaches, Nectarines, and Apricots are grafted, a portion of two-year-old wood should be attached. The length of scions varies with the growths, some having the buds much closer together than others, but as a rule 6 to 8 inches when the scion is prepared will be sufficient. In preparing the scions for crown grafting see that all the buds which will be left are wood buds. Cut a long slanting portion of wood from the lower end, starting from a point opposite a bud, using a very sharp knife, so that the cut is as clean as possible. Afterwards at the starting point take out a short transverse piece of the wood which will form a shoulder by which the scion, when inserted in its place on the stock, will rest firmly. The stock must be headed down to a suitable part where the bark is clean and smooth, and a similar length of cut made downwards in the bark. To insert the scion the bark should be lifted with a small wedge-shaped instrument, such as smooth bone, ivory, or wood, in order to admit the scion by its lower end, which should be slightly pointed on each side to render its introduction between the bark and the wood easy of accomplishment. The main point to be looked after in making the final adjustment is that the inner barks of stock and scion or the cambium layer in each should, as near as possible, exactly coincide. Having properly adjusted this important and essential point the grafts should be firmly tied with raffia, care being taken not to injure the parts in the operation. Then should follow the complete exclusion of air from all the cut parts and joinings of stock and scion, using either grafting wax or clay. Properly applied this preserves moisture about the grafts, and aids the processes of union.

ROOT-PRUNING FRUIT TREES.—This, where needed, should be carried out without delay before active growth commences. Late summer and autumn is the best time for this important operation, but it can be done in spring, and where trees are in an unsatisfactory condition by making too much wood they should be root-pruned. Very severe pruning, however, must not be attempted, only operating half round the tree and cutting off the main thick downward going roots. In the first place a wide trench must be dug at about 3 or 4 feet from the bole of the tree, and the soil carefully removed, undermining to reach the strong roots. When these have been severed the tree may be drawn partly over and the jagged ends and split portions of roots cut cleanly. All loose soil may then be thrown out, and some good turfy loam mixed with old mortar rubbish added to take its place. The tree should then be set upright and properly secured with supports, the roots spread out as much as possible, and the whole mulched with some half-decayed manure to keep the soil moist. The result will be seen during the summer by the restricted wood growth, whereby little pruning will be needed; and by operating on the other side when a convenient time arrives the tree will probably assume a fruit-bud forming habit.

PLANTING FRUIT TREES.—If trees are needed in any position they may yet be planted, but it must be done carefully, and if possible with as little loss of roots as possible. Where, however, trees of any kind suffer from severe laceration of the roots through various causes during removal, those remaining should be neatly trimmed to firm portions, and after planting the trees should have their branches pruned back in the same ratio as the roots, and the resulting growth during the forthcoming season will be stronger and better in consequence. Stake firmly all those requiring support, and mulch the surface over the roots, also supply water when the weather is dry to encourage quick establishment. If trees arrive with their roots in a dry state it is an excellent plan to place them in water, there to remain till the next day. If the trees are very dry indeed let them remain in a pond for several hours, root and branch.

FRUIT FORCING.

FIGS.—Earliest Forced Trees in Pots.—The very early varieties, such as Tresfer (Précoce d'Espagne), Early Violet, Angélique, and St. John's (Veitch's), that were started in gentle bottom heat by the middle of November, are now showing signs of taking the last swelling for ripening. The weather, however, has retarded the crop somewhat, and the larger fruited varieties, such as White Marseilles and Brown Turkey, are still stationary. They must not be hurried, as this is the most critical stage in Fig culture, checks of any kind causing the fruit to fall, and must be carefully guarded against. To insure flavour it is necessary to afford a higher temperature with increased ventilation, making the most of fine days for giving air, and closing early so as to secure safe advancement. After the fruit gives indications of ripening, water must be withheld; yet, though less water at the roots is necessary, there must not be anything like dryness in the soil. Until the fruit changes for ripening, the trees must be well supplied with liquid manure, giving the whole rooting area a thorough supply, and to trees safely passed the flowering stage a thorough soaking with water a few degrees warmer than the bed, then covering the surface with a light mulching of thoroughly sweetened partially decayed lumpy manure, acts like a charm on Fig tree roots, for the manure absorbs moisture when the trees are syringed, and the changes it undergoes attracts the roots, whilst a genial vapour is given off highly favourable to the foliage. Syringe twice on fine days, once a day when the weather is dull, always giving the second syringing in time for the foliage to become fairly dry before night. Maintain a night temperature of 65° in mild weather, 70° to 75° by day, and with sun secure a heat ranging from 75° to 85°, closing early so as to raise it to 90° or more, as Figs swell best with abundance of heat, moisture, and light, full exposure to sunshine being absolutely essential to secure high quality. Stop side shoots at the fourth or fifth leaf, not allowing them to become crowded; then, where needed, train terminals forward where space remains unfilled, and it can be done without shading the fruit.

Early Forced Planted-out Trees.—These now require generous treatment, especially when the roots are confined to narrow inside borders, as they should be, using sweet and rather lumpy material only. This should be kept regularly moist, as that is necessary for decay and the evolving of manurial elements, especially ammonia, which in minute quantities and in regular supply has a marked effect on the health of the trees. Syringe the trees thoroughly twice a day, or damp the paths and other surfaces frequently on dull days. Keep the temperature at 60° to 65° at night in mild weather, 5° less on severe frosty nights, ventilating from 70°, and keeping through the day between 75° and 85° from sun heat, attending to air-giving early, closing with a brisk heat about three o'clock in the afternoon, or earlier when cloudy. The growth is rapid, therefore give frequent attention to stopping side shoots at the fifth or sixth leaf, as these give the best results in the second crop, but avoid too many, for Figs are produced in proportion to the light received, hence where two or more shoots appear together rub off all but one, retaining those only that can have full exposure to light, otherwise they will not be sturdy and fruitful. Train terminals and successional growths to replace those reaching the limits, and to be cut out after fruiting, in their full length.

Late Houses.—Very fine crops of Figs are grown in houses with a south aspect, even when unheated. The trees should be planted in narrow inside borders, well drained; the best results with the strong-growing varieties, such as Brunswick and Negro Largo, being obtained by planting at the back of a lean-to, and training the trees with single stems up the back wall, and the fruiting branches disposed down the roof on a trellis about 16 inches from the glass. This checks their proneness to excessive vigour, and the sun rays falling directly into the points of the shoots insures their solidification and the highest perfection in the fruits. Trees may also be planted in front and trained up the roof. White Marseilles and Brown Turkey are the best for general purposes; Grizzly Bourjassotte is the most constant for delicious flavour, and ought to have heat; Negro Largo and Grosse Monstrueuse de Lipari are large Figs, the latter a certain first crop variety, and the former good for succession, but it requires heat to ripen the later fruits. Nebian and Agen are excellent for late use, these also must have heat to ripen the fruit perfectly. The principal points in their culture consist in keeping the growths thin, neatly secured to the trellis in summer, allowing the shoots to grow to the light towards autumn for ripening, and when growing afford generous treatment.

PINES.—When recently potted suckers are rooted they indicate it by the growth of the foliage, yet they should be examined by turning a portion out of the pots, so as to ascertain the condition of the roots and soil. The roots which issue from the suckers or plants disrooted are very tender, and liable to injury from the effects of too much bottom heat, therefore the pots must not have more heat at the sides than 85°, as more is likely to endanger their growth. If the heat at the base of the pots is more than that they should be raised, placing some loose tan under and around them, so as to allow the superabundant heat to pass away, doing it, however, without chilling the roots. Afford water as necessary, yet only giving it when required.

Prepare soil for transferring established plants to fruiting pots, as it is necessary that they be grown without check, and with the increased sun they root rapidly. Sound fibrous loam is the best material for potting, having it in good-sized lumps, and under cover to become warmed and dried. In potting press it firmly round the roots of the plants, supplying them with tepid water, and plunging at once in a bottom heat of 90° to 95° until the roots have permeated the fresh soil,

when they should only have 85°, which is suitable for successional plants, with a night temperature of 60° to 65°, ventilating at 80°, and closing at 85°, lightly sprinkling the plants occasionally.

Fruiting plants and those near the flowering stage should have a night temperature of 65° to 70°, and 75° by day, with 80° to 90° from sun heat, closing at 85°, damping all suitable surfaces in the house at that time.

MELONS.—The severe weather has kept back the early plants, but if late they have made a sturdy growth, as the days have been bright occasionally, and fruit is showing on the first laterals. To insure these setting it is necessary to keep the bottom heat at 80° to 85°, with sufficient moisture in the soil to prevent flagging. Activity at the roots is essential to the fruit swelling, and will not induce grossness, unless the soil is surcharged with water; it ought to incline to dryness, so as to arrest growth, which centres the forces on reproduction. A rather warm and dry atmosphere favours the production of pollen, affording a little air to prevent the deposition of moisture on the flowers. Fertilise the blossoms every day when fully expanded, and stop the growths one joint beyond the fruits. When these commence swelling remove all flowers, earthing the roots by placing warm soil against the sides of the ridges or hillocks, pressing it firmly. Apply water as required, avoid a soddened condition of the soil, sprinkle the floor in the morning and evening, lightly syringing at closing time when the days are bright.

To swell well, Melons require a night temperature of 65°, or a little more in mild weather, 70° to 75° by day artificially, 80° to 90° from sun heat, closing early in the afternoon so as to raise to 90° or 95°, even 100° doing no harm provided the atmosphere is moist. If a succession of fruit is wanted in the same house, some of the plants should be deprived of the flowers that appear on the first laterals; stopping these at the second joint will cause the sub-laterals to show fruit, which will be several days later and the fruits finer, because the plants are stronger, but quality depends upon the solidification of the growths—their exposure to light, and steady supplies of nutrition. Place supports to the fruits in due course to relieve the plants of the weight, pieces of deal half an inch thick and 6 or 7 inches square, suspended in a sloping direction by four pieces of wire from the trellis, answer well, or square pieces of garden netting fastened to the trellis by four pieces of string may be used. Make additional plantings, pressing the soil around each plant, shading for a few days if the sun be powerful for a couple of hours in the middle of the day, discontinuing it when the plants become established. Young plants should be kept near the glass, so as to keep them sturdy. Sow for succession.

Plants in Pits and Frames.—These require similar treatment to Cucumbers in lining the beds, adding fresh soil as the growth advances, and in covering the lights at night. Train and regulate the shoots, removing every alternate lateral, and apply water only to maintain a steady growth. Seedlings must be potted singly as soon as they show the second leaves. Seed may be sown to furnish plants for pits and frames as they become cleared of forced Potatoes and Radishes, about five weeks being necessary to secure strong plants for placing out before they become root-bound.

CUCUMBERS.—Plants which have been in bearing all the winter in houses will need frequent attention; remove all exhausted growths and bad leaves, encourage a free growth, stop the bearing parts two joints beyond the fruit, thin where too crowded, and secure the growths to the trellis. It will much invigorate the plants by removing a little of the surface soil, disturbing the roots as little as possible, supplying a top-dressing of turfy loam with a sprinkling of steamed bonemeal and a little charcoal, and when the roots are active in the top-dressing sprinkle a few sweetened horse droppings on the bed occasionally, feeding as required with liquid manure in a tepid state. Young plants will need more soil, adding to the hillocks as the roots protrude. Maintain a night temperature of 65° to 70° when mild, 70° to 75° by day from fire heat, keeping through the day at 80° to 90°, closing early in the afternoon with abundance of moisture, securing a steady bottom heat of 80°.

Manure-heated pits and frames which have been set to work some weeks will need good linings. This is best effected by removing as much of the outside of the beds as can well be spared, and if the heat has not greatly declined it will suffice to line one half of the bed at once, deferring the other half until the heat is again on the decrease. To be effective the lining should be 2 feet wide, for thin linings are soon spent and sooner require renewal. Look carefully to the frame after the heat generates in the lining to see that there is no accumulation of rank steam, preventing it by a little ventilation, especially when the sun shines. Add a little more soil as the roots spread on the surface, taking care to have it warmed. Attend to training and pegging the shoots, not overcrowding them, stop the leaders a foot from the sides of the frame, and pinch the laterals one or two joints beyond the fruit. In watering do not wet the foliage more than can be helped, as it is quite soft and easily scorched. A good night covering will be necessary to maintain a temperature of 65° to 70°, though it may fall lower on cold nights. Admit a little air at 75°, allowing the temperature to rise to 85° or 90°, closing before it falls below 85°, and if it rise to 90° or more the day's work will be better and a good heat stored for the night. The night coverings should be put on by the time the sun is off the lights, say about five o'clock in severe weather, never delaying beyond six o'clock in the afternoon at this time of the year.

PLANT HOUSES.

Celosias.—As soon as seedlings are large enough they should be placed singly in thumb pots, and shortly afterwards arranged on a shelf close to the glass, so that they will make a dwarf sturdy growth; the temperature may range about 60°. Cockscombs may have the same treatment.

Coleruses.—Young plants rooted in pots or pans must be potted singly, those rooted in small pots should be placed into 3-inch. If bushes are required pinch the plants as soon as they commence growing. For many forms of decoration plants with single stems and large foliage are very useful. Where bushes are needed early four or five cuttings may be inserted in each pot, and be allowed to grow on without pinching, and when a sufficient stock has been obtained old plants may be thrown out; they seldom grow freely, and are surpassed by young vigorous plants.

Balsams.—Directly the seed leaves have been developed pot the plants singly. Pot them down to the seed leaves, and when they have started again into growth place them on a shelf where the temperature ranges from 55° to 60° at night. If grown too warm they soon become tall and weakly, failing to branch freely.

Primulas.—Prick out seedlings into shallow pans as soon as they show the third leaf. These need not be placed more than 1 inch apart. Shade for a few days, and then grow them close to the glass on a shelf. A little more seed can be sown if sufficient plants have not been obtained for early flowering.

Double Varieties.—Plants that have flowered may have some of the lower leaves removed, and light sandy soil packed about the stem. If these are placed on a shelf in an intermediate house, and the surface soil kept moderately moist, roots will soon be emitted from the stem, when the plants can be divided and potted singly. Cuttings will root freely, but it is a less certain method than earthing up their stems to induce the formation of roots before cutting them up. Superior single kinds can also be increased by this method.

Heliotropes.—Plants that flowered well during the autumn and have been well cared for since will come into flower quickly if placed in an intermediate temperature. Young bushy plants that have been kept in 3-inch pots may be placed into 5-inch pots; in a temperature of 55° they will commence active growth, and prove useful for decoration.

Zonal Pelargoniums.—The best of those that flowered during the winter are showing buds freely; these will come into bloom in a few weeks if a temperature of 55° can be given them. Young stock should not be introduced into heat before their flower spikes are visible, for they are liable to start into soft growth and then fail to flower. Plants that have been cut back and are commencing growth may have the whole of the old soil shaken from their roots. These may be reduced, and the plants replaced into the same or smaller pots. Water carefully until they have commenced rooting and growing freely. Cuttings may be inserted in quantity for autumn and winter flowering. If inserted in small pots and kept growing they will be useful by the time it is necessary to turn them outside.

Carnations.—The necessary cuttings of Miss Jolliffe may be rooted. Select firm sturdy shoots from plants that have been in a cool house. If inserted singly in thumb pots in sandy soil they will root freely if gentle bottom heat can be given where the temperature of the house ranges from 60° to 65°. They also root freely inserted together and covered with a bellglass. A good plan is to insert them in a box half full of sandy soil, and then cover with glass so as to keep them airtight. Tree varieties should also be rooted in sufficient quantity for next year's stock of plants. Plants of Souvenir de la Malmaison that were placed into 3-inch pots in autumn have rooted well, and may be transferred into 6-inch pots. Any that are weakly may be reserved and planted out for stock. Plants that it is necessary to flower under glass should be potted without delay. The old Crimson Clove does well in pots, as well as many other border varieties, and will be found useful where better kinds are not grown, as they will commence flowering long before any can be gathered outside. With a little care the stock of flowers may be maintained over the greater portion of the year. If aphides appear upon the plants destroy them at once by fumigating with tobacco smoke.

Mignonette.—For pyramids and standards to flower in the autumn seed should be sown of Parson's White or Miles' Hybrid Spiral in the centre of small pots. As soon as the seedlings are up select the strongest for standards; three or four may be left in the pots of those that are required for pyramids. Plants that have been in a cool house during the winter may be finally thinned if they are too crowded. It is a good plan to carefully bend over the surface of the pot those that are left. If this is done and the points removed they will break strongly from nearly every joint, and in a short time bushy plants a few inches high with large spikes of bloom will be the result. No attempt must be made to force these plants, they enjoy a cool airy place and a moisture-holding base. Water carefully, do not allow the soil to become dry, or the foliage will turn yellow.

Libonias.—If cuttings are not rooted they should be inserted at once. Those that are rooted should be placed singly into small pots and grown on for a time in heat. When a few inches high the point of the plants should be removed to induce them to branch. If large plants are required two or three plants may be grown together. For this purpose we invariably cut back a few plants and grow them well. For 5-inch pots single plants rooted at the present time are the best.

THE BEE-KEEPER.

NAPHTHALINE AND FOUL BROOD.

UNDER the above heading on page 73 of this year's Journal I notice the following question asked by Mr. James Wilson, Dalmeir, "Are the ingredients sold by the editors of some bee journals for foul brood to be depended upon?" The answer given by "Lanarkshire" in the same journal appears to me to be begging the question. He says, "I am only too glad to say I do not know," and the reason he gives for not knowing is, "as I consider it much better to manage bees in a way that their combs and contents do not become predisposed to foul brood." This, to many, may appear a wise thing to do, and so it would if it were possible, but it is not.

FOUL BROOD.

This is no new disease, for it is "said to have been known to Aristotle." At any rate, whether this was so or not, it has been known in Great Britain, in Germany, and many other parts of Europe for more than a hundred years, and no remedy on record was found to be successful. Since the introduction of the moveable comb system a better opportunity has arisen for ascertaining the condition of a colony of bees, and of intelligently examining those colonies that are not doing as well as could be wished. In skeps and box hives, with fixed combs, which were formerly almost universally used, it was next to impossible to examine a colony properly. Of course, by turning them up the strength of a colony could be ascertained and some idea formed of the well doing of the same, but the practised eye could tell all this on a fine day almost as well without looking into the hive.

THE SYMPTOMS OF FOUL BROOD.

The first thing we notice is the decline in the prosperity of the colony, a falling off in the number of bees, and on an examination of the combs we find dark and sunken cells, many of them pierced with a pin hole in the centre of the capping; the brood seems to putrefy in the cells, which generally contain a thick brownish ropy matter, that gives off a very disagreeable smell. By inserting the end of a lucifer match into the cell and twisting it round a nasty looking matter is drawn up, the other end appearing to adhere tightly to the bottom of the cell, and if left ultimately dries in the cell. If the disease is very bad a most offensive smell can be detected without opening the hive. Little brood is reared, the bees are in a desponding condition, and the little honey there is in the hive is soon taken from them by robber bees from prosperous colonies in the neighbourhood. The honey so taken contains the germs of foul brood, and in this way a whole district becomes infected.

PREVENTIVES AND REMEDIES.

I would ask "Lanarkshire" if it is possible that he can "manage bees in a way" to prevent infection from this source. Some few years ago, it is said, "Dzierzon, a celebrated German bee master, lost his whole apiary of 500 colonies" by foul brood. "Mr. E. Rood, first President of the Michigan Bee-keepers' Association, lost all his bees two or three times by this terrible plague." This is not a disease to be spoken of slightly, or that can be "stamped out" in the ready way that "Lanarkshire" would have your readers believe. If he had lived in a neighbourhood in the midst of foul brood, and suffered from it as I have done, he would be glad "to resort to one nostrum after another," and try those remedies that had been found useful when carefully and intelligently applied.

NAPHTHALINE AND NAPTHOL BETA.

These have been experimented with both here and on the Continent, are easily used, and perfectly harmless, if the directions that are sent with each packet are followed out. "Lanarkshire" says, "the two first mentioned ingredients cost from 3s. to 4s. a pound." This is a random statement, calculated to do harm, as they are, I believe, supplied at about one-fourth of the prices he names. These are not times to "pooh-pooh" the careful experiments of any persons whose practical and painful experiences have necessitated the adoption of the best known remedies for palliating such a baneful disease, and who, having found benefit therefrom, give others the advantage of their experience.—
JOHN M. HOOKER.

TRADE CATALOGUES RECEIVED.

Ketten Frères, Luxembourg.—*List of New Roses for 1892.*
John Laing & Sons, Forest Hill, S.E.—*Catalogue of Caladiums.*
Little and Ballantyne, Carlisle.—*Catalogue of Farm Seeds.*
Cooper, Taber, & Co., 90, Southwark Street, London, S.E.—*Agricultural Catalogue, 1892.*
William Paul & Co., Bridge of Weir, N.B.—*Select List of Pansies.*



TO CORRESPONDENTS

*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (E. R.).—The two books you desire have been forwarded to you; respecting the other one mentioned in your letter we know nothing, and therefore cannot give the publisher's name. Perhaps "Oliver's Elementary Botany," published by Macmillan, price 4s. 6d., may suit you.

Green Fly on Gooseberry Bushes (J. M.).—The bushes may be dusted whilst dormant and damp with mist, or after rain, with quicklime. This has a good effect on the eggs, cleanses the trees of lichen and moss, and does good to the soil. Upon the first appearance of the aphides the bushes may be syringed with quassia water, 1 lb. of chips to 3 gallons of water; let it stand twenty-four hours, and strain before use. Another plan is to use the following:—4 ozs. of quassia chips boiled a quarter of an hour in a gallon of water, adding 2 ozs. of soft soap whilst hot, dissolving it thoroughly, and straining. Both the preceding are best applied with a spraying nozzle, directing the spray upwards, so as to reach the under side of the leaves. A cheaper yet efficacious plan is to syringe the bushes with clear lime water, made by placing 1 lb. of quicklime in a tub with 3 gallons of water, stirring well together, letting stand twenty-four hours, then pour off the clear water, leaving the sediment. It is also a good plan to cut off the infested points of the shoots and burn them, thus clearing the bushes of many aphides.

Marechal Niel Rose in Greenhouse Injured by Frost (H. E.).—The wood and bark of the shoot received are not injured by frost, but dried by evaporation taking place from the wood and leaves, and to such an extent as to place in jeopardy the part of the Rose within the house. The cause of the mischief is freezing the stem outside the house, which cuts off the supply of sap, hence the flagging of the leaves and drying of the wood. We have had many similar cases through inefficient or improper covering of the outside stems both with Roses and Vines, but with no worse result than giving a severe check and loss of crop for the year. Where it occurs the stems have been bare on some part, the covering had become wet, or it was too thin; thus the frost froze the fluids in the stem, and there is no remedy in that case but to cover the stem with dry material, and allow it to thaw gradually. We once had a Marechal Niel in a greenhouse planted in a border outside at the east end, the stem taken inside, and this Rose covered a large portion of the roof, and promised an abundant crop of flowers. The stem outside was enwrapped in a hayband, which had afforded sufficient protection whilst dry, but it was saturated by the winter rains, and in spring a spell of severe weather set in, when, after a sharp night, the foliage became flaccid, and worse as the sun and light increased. It was an easy matter to syringe the Rose, to cover the roof with mats, and to syringe cold water on the hayband outside so as to slowly thaw the stem. This was effected in an hour or two, and the leaves rose at once, recovering their freshness; the old hayband was taken off, a new and dry one applied, and all went well. We fear the wood in your case is too much dried, but we should syringe the Rose two or three times a day, shading from hot sun, and it may recover.

Wireworms in Vine Border (Merchant).—The best of all remedies is trapping. The following plan never fails:—Cut Carrots of 1 inch or more in diameter into pieces of that length, thrust a pointed stick into each bait, having the stick about 6 inches long, and insert these baits in a hole about 3 inches deep, and large enough to admit a little loose soil around them, covering lightly with soil. Examine the traps every morning; and the wireworms, in mild weather, will be found feeding on the Carrot, and are readily destroyed by cutting them in two with a small (4 inches) pruning scissors, or they may be collected in a tin box and that emptied into the kitchen or other fire. The baits are easily withdrawn from the soil by the handles, which serve to indicate their position. Replace the baits, and continue them or fresh for a short time, when every wireworm will have been caught, for it is not possible to have a trap of this kind within a foot of the pest without its attacking it. Every square foot of the border should be baited in the manner indicated; and, though the border swarm with click beetle larvæ, the Carrots never fail to capture every one. But whence came the wireworms into the border? It is contrary to our experience to find wireworms in Vine borders unless introduced in the soil, for they prey on herbaceous plants more than on the roots of ligneous plants, and exist only in Vine borders until they pass into skipjack

beetles, and then seek fresh pastures for their progeny. Another good plan, and one having very little to do with wireworm in many cases, yet efficacious where there are those and similar pests to contend with, as well as soil become effete for want of aëration and change of constituents, is to sow the border with Mustard if an outside one, and allow the crop to flower, then turn it under if the roots admit; if not, tread it down and cover with soil. This is better than removing the crop, as the manurial elements brought up by the deep rooting of the Mustard are useful, as the roots die and leave the soil permeable by air, a similar process resulting from pulling up the Mustard; but there is a distinct loss of fertilising substances. You would not be doing any harm by placing a little liquid manure from stables in the troughs on the hot-water pipes; but care must be taken not to use it too strong, or the ammonia would injure the foliage.

Weeds in Lawn (One in Trouble).—If the whole of the lawn is as represented by the samples it is practically beyond satisfactory improvement by any dressings. The weeds are not grown annually from seeds blown from adjacent land, but are perennials firmly established, and if they flower scatter their own seed. 1 is *Cerastium vulgatum*. 2, *Prunella vulgaris*, 3 an *Achillea* and Moss. The whole should be forked up when the ground and weather are favourable for the removal of every particle of rubbish, which should be burned. The site should then be drained if needed, the surface soil enriched with a compost containing lime and wood ashes or a mixture of bonemeal and kainit made firm, rolled level, then scratched with a rake for forming a suitable tilth for a mixture of lawn seeds, which can be obtained in the right quantity and kinds on your describing the extent of the space to be sown and the nature of the soil to a seedsman or firm. By sowing in genial weather in April we have had a full and close lawn in six weeks. This is the cheapest and best way of forming lawns of a satisfactory character.

Special Prizes (H. Faurey, Cape Colony).—We are sorry to hear the weather limited the competition at your "Spring Show in November." We also note that your "Rose Show was, in consequence of the unfavourable season, postponed till January 29th and 30th." This we are pleased to learn was successful, though all the special prizes offered by friends were not awarded. In respect to these prizes we consider you took a very proper course in writing to the donors, and we suspect few of them would decline to place them at the disposal of the committee for a future show. You ask "What the large seed firms who offer prizes in England would do if no one entered for these prizes?" They would simply not pay the money under the circumstances, but in all probability repeat their offers another year if requested to do so.

Repetition of Sentences—Rules for Writing and Speaking (G. S.).—We are obliged by your letter. Tastes in literature vary as in flowers and food, still flowers must be presented in the best condition no matter what they are, and food of whatever kind must be palatable to be enjoyed. So it is in literary fare, and undoubtedly undue repetition of words and sentences mars the productions of many writers. Editors, so far as they can do so without destroying the substance of contributions, improve the style of expression; but when sentence after sentence needs reconstruction, and writers employ the same words over and over again, as if there were no others to express their meaning, the work of revision becomes more tedious and costly (for time is money) than the articles are worth. We have had communications innumerable in the course of years which contained sound instruction, but so imperfectly conveyed as to be inadmissible, and it would have been much easier to have written original articles on the subjects than revise the MSS. to make them presentable. It is quite permissible, and often very convenient to readers, for writers to reproduce a few sentences of their opponents in controversy for the purpose of comment, but this is not infrequently overdone, and judgment should always be exercised in the practice. To be continually dragging sentences in that might easily be dispensed with is a mistake that does not strengthen the position the writer is endeavouring to maintain. Another mistake not very uncommon is the habit of writers when stating a fact or expressing a thought not to quite finish either, then proceeding in a more laboured manner to do the work over again, for that is what it really is, though they are evidently unconscious of it. We have before us some "Rules for Writing," copied, we know not from whom, by a gentleman whose facile pen, correct, clear, concise, and excellent method of expression have materially helped him onwards and upward to the high position he occupies in the commerce of horticulture. Here are the rules:—1, Be brief. 2, Be pointed; don't write round a subject without hitting it. 3, State facts; don't stop to moralise, that is drowsy work; let the reader do his own dreaming. 4, Condense; make sure you have an idea and then record it as shortly as possible. 5, Avoid high-flown language; never use stilts when legs do as well. 6, Make your sentences short; every period is a milestone at which the reader may halt and rest. 7, Write legibly. Good advice is quaintly conveyed in those rules, and several writers, young and old, might do worse than preserve them for their guidance. The "Foreman" to whom you allude, and whose opinion you convey, is evidently a critic, but how far he is a competent critic of literary style we have no means of knowing. We can judge of his capacity if you can induce him to send us an article; or he might compete for one of the medals we are offering. We shall have great pleasure in sending it to him if he wins it. Should he happen to be more a talker than writer, we have three "Rules for Speaking" by the unknown author above cited, which you might perhaps venture to bring before the "Foreman" at one of the friendly gatherings which he addresses, we hope to the benefit of his fellow men. Here are the rules:—1, Be sure you have something to say. 2, Get up and say it. 3, Get down when you have said it. Pithy and easy to be remembered.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (*Herbert*).—These appear to us to be a set of seedlings, none of them possessing any great merit.

Names of Plants.—Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. M. F.*).—*Acacia Farnesiana*. (*W. R.*).—1, *Nephrolepis davallioides*; 2, *Lomaria gibba*; 3, *Lindsæa cultrata*; 4, *Hypolepis distans*. (*T. W.*).—The specimens are not satisfactory, nor were they sent in accordance with our instructions, which you should read carefully. No. 1 appears, however, to be *Begonia natalensis*.

COVENT GARDEN MARKET.—MARCH 16TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	4	0	Grapes, per lb.	1	9	3	6
Apples, Canada and Nova					Lemons, case	15	0	2	0
Scotia, per barrel	12	0	25	0	Oranges, per 100	4	0	9	0
Cobs, Kent, per 100 lbs. ..	0	0	45	0	St. Michael Pines, each ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	9	2	0	Mustard and Cress, punnet	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	6	0	10	0	Scorzoneria, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	2	0	5	0	Mignonette, 12 bunches ..	1	6	3	0
Azalea, dozen sprays	0	6	0	9	Mimosa or Acacia (French)				
Bouvardias, bunch	0	6	1	0	per bunch	1	6	2	0
Carnations, 12 blooms ..	2	0	3	0	Narciss (French) dozen				
Cineraria, dozen bunches ..	9	0	12	0	bunches	2	0	4	0
Cyclamen, dozen blooms ..	0	3	0	6	Narciss (various), Scilly				
Daffodils (double), dozen					dozen bunches	2	0	4	0
bunches	2	6	4	0	Pelargoniums, 12 bunches				
Daffodils (single), doz. bnch.					" scarlet, 12 bunches	9	0	12	0
Eucharis, dozen	4	0	6	0	" Primula (double) 12 sprays	0	6	0	9
Euphorbia jacquiniæflora					Roses (indoor), dozen ..	1	6	3	0
dozen sprays	2	0	3	0	" Red, per doz. blooms ..	4	0	9	0
Epiphyllum, dozen blooms					" Tea, white, dozen ..	1	0	3	0
Freesia, dozen bunches ..	3	0	6	0	" Yellow, dozen	2	6	6	0
Gardenias, per dozen ..	4	0	8	0	Snowdrops, dozen bunches	1	6	3	0
Hyacinths, dozen spikes ..	4	0	6	0	Tuberose, 12 blooms	1	0	2	0
Lilium longiflorum 12					Tulips, dozen blooms	0	6	1	0
blooms	6	0	9	0	White Lilac (French) per				
Lilium (vari us) dozen					bunch	4	0	6	0
blooms	2	0	4	0	Violet Parme, French bchs.	2	0	3	0
Lily of the Valley, dozen					" Czar	1	0	2	0
sprays	0	6	1	0	" small bunches	1	6	2	0
Marguerites, 12 bunches ..	3	0	4	0	" English, doz. bunch.	1	0	1	6
Maidenhair Fern, dozen					Wallflowers (foreign), dozen				
bunches	6	0	12	0	bunches	2	0	3	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	12	0	Foliage plants, var., each ..	2	0	10	0
Azalea, per plant	2	6	3	6	Genista, per dozen	10	0	12	0
Cineraria, per dozen	6	0	9	0	Hyacinths, per dozen	6	0	9	0
Cyclamen, per dozen	9	0	18	0	Lily of the Valley, per pot	1	3	2	0
Daffodils, per dozen	9	0	15	0	Lycopodiums, per dozen ..	3	0	4	0
Dracæna terminalis, dozen	4	0	42	0	Marguerite Daisy, dozen ..	6	0	12	0
" viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	9	0
Erica gracilis, per dozen ..	9	0	12	0	Palms, in var., each	1	0	21	0
" hyemalis, dozen	12	0	18	0	" (specimens)	10	6	63	0
Euonymus, var., dozen ..	6	0	18	0	Pelargoniums, scarlet, doz.	4	0	6	0
Evergreen, in var., dozen	6	0	24	0	Solanum, per dozen	9	0	12	0
Ferns, in variety, dozen ..	4	0	18	0	Tulips, dozen pots	6	0	8	0
Ficus elastica, each	1	6	7	0					



ECONOMY IN CROPPING.

PROFESSOR PAUL WAGNER last year called special attention to the fact of leguminous plants being absorbents of atmospheric nitrogen in such large quantities as not only to induce growth of

exceptional vigour in the crop, but to store the soil with enough of that prime fertiliser for the requirements of a crop of corn. This teaching points clearly to a considerable saving in the purchase of manures, for if we by judicious cropping can become practically independent of nitrate of soda for general cropping by only having to use it occasionally, we shall avoid our present heavy outlay on this the most expensive of the indispensable manures, and with a lesser demand for it would come a reduction in price. Subsequently he has explained how the experiments conducted by him at the Darmstadt Agricultural Research Station have shown that nitrogen and phosphoric acid are to be obtained in the cheapest way by the cultivation of Leguminosæ, and by the use of basic slag and potash salts.

Well will it be to bear this in mind now, and to let this important matter have its due influence upon our schemes of cropping for the coming season. Of the Leguminosæ, or pod bearers, we have in cultivation Peas, Beans, Vetches, Clover, Sainfoin, Lucerne, Trefoil, and Lupins, for all which crops no nitrate of soda is required, only superphosphate, or preferably, for its more quick and certain action, Albert's soluble basic phosphate, and possibly some muriate of potash. On clay land Albert's phosphate may be used alone. We thus effect a very considerable saving upon our outlay for manure, and may see that for such crops it may be wasteful to use farmyard manure.

In grass mixtures for alternate husbandry of from two to four year leys, also for permanent pasture, the Clovers and Trefoils should enter much more largely than they have done hitherto, as being certain to give a greater bulk of herbage, with less expenditure upon manures. Sainfoin and Lucerne should both be cultivated much more extensively than they are. Like the Clovers, Sainfoin gives two full crops in each year. It is alike valuable in its green state or as hay, cattle, sheep, and horses all being fond of it; and it is in high favour in the Newmarket district as hay or stover for horses. Lucerne gives four crops a year, the first crop being ready for use long before Red Clover; it roots so deeply as to be unaffected by drought, is sown in drills far enough apart to admit of hoeing to keep down weeds, and then lasts for ten or twelve years. It is certainly one of our most useful forage crops, which should find a place near every homestead, so that ample supplies of its nutritious herbage may easily be taken to horse stables and cattle yards. Sir J. B. Lawes thinks so highly of it as to recommend it to be used in mixtures for permanent pasture. There is very little doubt it will answer in any really well-cultivated land that is drained and has thorough mechanical division. As we hold that all land should be brought into such an open friable condition, we are justified in our recommendation of Lucerne generally.

For very poor land the most profitable forage crop of all is the despised Gorse, which, be it remembered, is a pod bearer deriving ample supplies of nitrogen from the air. It thrives wonderfully on poor thin soils, bears mowing just like grass, and when bruised so as to crush the spines is eaten readily by cattle, sheep, and horses. Analysis shows it to be really nutritious. It may be sown now in rows a foot apart, using about 25 lbs. of seed per acre. When kept mown regularly it throws up a dense growth of soft succulent shoots, and it holds its own well among the most wild or crowded growth.

Vetches are likely to be turned most to account for storing the soil with nitrogen for a corn crop. There is frequently enough of stems and roots left for this purpose after the crop is mown, as the plant has the lower part so pressed down upon the soil by its own weight that the scythe can only touch the upper part. This is one of our most valuable green crops either for mowing to be eaten in rack or manger, for folding with sheep, or lambs when weaned and being pushed on for any special purpose, for a crop of seed, or for ploughing in. Successional sowings afford a supply from spring till long after midsummer. Many a load have we carted to

cows out on pasture which was parched and almost dried up by drought.

All the crops mentioned are really useful sources of food supply for the farm live stock. Under good management they afford a much greater bulk of forage than an ordinary grass crop does, which, too, may often be had when pastures fail. In the immediate future they are likely to receive additional attention for their value as soil feeders, and have a leading place given them for economy in cropping.

WORK ON THE HOME FARM.

As we write this note on the morning of March 9th, in a midland farmhouse, it has been snowing heavily for some hours. Snow is still falling, the cold is intense, yet the cows have just been turned out for exercise in the snow-covered pasture, where they will probably remain for hours, instinctively seeking that shelter under a hedge which is so foolishly denied them by their owner. The scanty meal of hay which they had before being turned out was barely sufficient for the maintenance of vital heat, to say nothing of bodily nourishment. Very few cows on the neighbouring farms lie in at all; they are out in the open exposed to every change of weather. Most young sturdy beasts survive, but delicate beasts succumb one after another, and when summer comes again the low condition of the survivors shows how terribly severe the strain has been. It tells, too, upon their calves as well as upon the milk yield, the one being weak, undersized, and predisposed to disease, the other being sadly deficient both in quality and quantity. Again we say keep in the cows from autumn till spring in yards well sheltered on the north and east sides; let the open lodges be wide enough—18 or 20 feet—to afford complete shelter; cowhouse well ventilated and drained; bedding fresh, clean, and dry; food abundant, wholesome, and nourishing; water pure and fresh.

A couple of commodious loose boxes have just been added to the homestead of a tenant's farm, specially for down calving cows or foaling mares; either or both can also be used as a hospital upon occasion. A separate yard, with a division and two deep lodges or hovels, was made at the same farm in a meadow at some distance from the homestead as a receptacle for cattle when first brought to the farm, so as to avoid all risk of contagion. Foot and mouth in cattle, glanders in horses, fever in pigs, foot rot in sheep, should all be guarded against by keeping all newly purchased animals quite apart from others till it is certain they are healthy. This is just one of those trifling matters of detail that are generally neglected; unfortunately the resultant mischief and loss is not usually confined to any one farm, but is often spread far and wide. Do not forget how the germs of disease are carried from farm to farm by the clothes of persons and the hair of animals. Keep off! must be our cry while foot and mouth disease continues to spread, even at the risk of being thought churlish.

The insides of all hovels, lodges, cowhouses, and piggeries are having an extra coat of whitewash. By adding one part of common salt to three of quicklime we obtain a wash as hard as cement. This is due to the hygroscopic action of salt, which absorbs water, and permits of the speedy combination of the lime with the carbonic acid of the atmosphere. It may be made thin and applied with a syringe perfectly well, and much quicker than is possible with a brush.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	March.	Barometer at 32° and Sea Level.	Hygrometer.		Diree- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	6	30.241	32.1	28.3	E.	35.6	37.9	30.2	66.6	27.4	—
Monday ..	7	29.991	30.7	28.4	E.	35.1	37.2	29.2	78.8	27.2	—
Tuesday ..	8	29.944	30.9	27.9	E.	34.9	36.4	24.2	63.3	20.7	—
Wednesday ..	9	29.630	32.8	30.9	S.W.	34.8	39.3	22.3	88.2	21.9	0.128
Thursday ..	10	29.350	31.2	30.1	S.W.	34.3	39.1	23.3	74.4	25.2	0.048
Friday ..	11	29.589	31.4	29.9	N.W.	34.2	40.5	24.6	82.2	21.6	—
Saturday ..	12	29.568	30.9	29.4	N.W.	34.0	39.7	27.0	85.5	24.9	—
		29.759	31.4	29.3		34.7	38.6	25.8	77.0	24.1	0.176

REMARKS.

6th.—Cloudy morning; frequently bright in afternoon and evening.

7th.—Sunshine almost throughout.

8th.—Sun shining through haze, a thin cloud in morning; cloudy at times in afternoon.

9th.—Bright early, clouded over soon after 9 A.M., and between 9.30 and 11.15 A.M. about an inch of snow fell; bright sun again at 1.30 P.M., but between 1 and 2 P.M. another inch of snow fell; bright sun at 2.30 and alternate cloud and sunshine after.

10th.—Bright early; slight snow from 8.30 to 9.30 A.M., and half an inch between that time and 10.30 A.M., bright sunshine till 2 P.M., then variable with occasional slight snow.

11th.—Frequently cloudy, but long intervals of brilliant sunshine.

12th.—Almost unbroken sunshine throughout.

A brilliant but very cold week, the mean temperature being nearly 10° below the average.—G. J. SYMONS.



AFTER a "second winter" of somewhat prolonged duration, with frost on twenty consecutive nights from the third week in April to the middle of March, and winds unusually piercing, the change which occurred about a week ago was as welcome as it was urgently needed by all who are engaged in gardening. With the ground sealed by frost for weeks, the stoppage of work was inevitable, and not gardeners alone felt the inconvenience of the position. Planting was seriously retarded, and orders for fruit and other trees could not be executed; the seed trade was checked and became sluggish at the time it should have been brisk; plans were laid that could not be executed, and work of various kinds had to remain undone long after the period of its hoped-for completion. At length the longed-for genial weather came, but the warm spring-like days and mild nights did not very long continue. Changes sudden and extreme are expected incidents to us, but take by surprise some of the visitors to our shores, and the thoughts of many were perhaps expressed by one who sarcastically averred that he had seen no weather in England, but only samples. It has been said where the sun always shines, as in southern countries, the people are habitually indolent, and therefore the alternations of sun and showers, of icy winds and balmy days, may keep men on the alert in preparing for sudden and adverse changes on the one hand, and promptly making the best of opportunities as they occur on the other. Is that one of the reasons why the best British gardeners have attained world-wide renown as expert cultivators? It is certain that the highest excellence in produce could not be forthcoming at the right time in the absence of alertness of mind, much forethought, and quick resolve when favourable conditions arrive, possibly not long to remain.

Now that spring has come, it is to be hoped to stay, every endeavour should be made to advance the work which the prolonged winterly weather has delayed, for to be behind time in April often results in work and weeds being masters all the season. At no time can a little extra help be more profitably allowed in gardens than at this period of the year, and it is undoubtedly needed in many. It is also of more importance than many persons appreciate that garden requisites, such as seeds, be ready to hand for use when they can be used to the greatest advantage as regards both time and weather. Few, if any, greater mistakes are made than deferring to order what is known to be requisite till the day it is wanted. Many favourable opportunities have been lost and the object in view frustrated by this policy of delay. Nothing is gained by it in initial outlay, while risk is incurred of distinct loss in results. It is prudent to make a careful forecast of gardening requirements now, and then seek how best they can be met by consulting the pages in which most that is good is set forth for meeting the wants of the times.

As has been said, the planting of fruit and other trees has of necessity been in abeyance through the prolonged severity of the weather, and it may be thought by many persons who were intending to plant when the frost and snow came that it is too late now to do so. If it was not too late then it is not too late now, and it may be stated that trees planted now carefully and well will be likely with reasonable cultural attention to make better progress than those that were placed in their

positions just before the cold period commenced; or, in other words, they were better undisturbed in the nursery than those that were removed to undergo the chilling ordeal to which they have been subjected.

Autumn is admittedly the best time to plant while there is still some warmth in the soil; midwinter the worst time, when the ground is the coldest; the present, or spring time, being preferable because there is a sensible increase of earth warmth, and no long time will elapse before it is sufficient to summon the roots into action. Moreover, no one need be deterred from planting if the buds of trees are distinctly swelling, and even if those near the tips of the branches are casting their scales, always provided the roots are fresh and abundant, the soil is in a friable state, and a little of a light and friable character is placed under and over the fibres. Dried roots, such as of trees long exposed to the air as in markets, also with jagged, broken or torn roots placed in the ground in their mutilated state, cannot be expected to make satisfactory growth; but with the roots damp through good packing by experienced men, or, if by accident a little dry, freshened by immersion in water for some hours, all bruised or broken parts removed by a clean undercut from the tree outwards—young Apple trees, for instance—will, if properly planted after the sap has commenced moving, grow better than when it is "still" as in winter. There are dormant buds towards the base of the branches, and to these they should, as a rule, be shortened, especially if bright sun or drying winds prevail, to lessen the surface of evaporation. As has been previously stated in this Journal, and as all experienced growers know is true, deciduous plants, such as Fuchsias which have been rested, break better when shaken out and repotted when the buds are swelling than when they are in a quiescent state, and it is the same with hardy deciduous trees and shrubs. If we had intended to plant a given number of trees but were prevented by the frost, we should plant them now in the condition and manner indicated, in confidence that they would be well established during the season and ready to make full free growth another year.

From "spring trials," and suggestions for consequent action, we pass to "summer prospects." Though we never know what kind of weather may be in store, and how late in spring or early summer we may have a "sample" of the inclement kind lately experienced, fruit growers still derive a modicum of satisfaction in the lateness of the buds of their fruit trees at this season of the year. We can only hope this may be a favourable portend, but in some way Apple blossom has a habit of making up for lost time, and a few days sooner or later is a matter of small consequence in comparison with the nature of the weather when the flowers expand. Sometimes the earliest blossoming Apple trees set their fruit better than do those a few days or a week later, the difference resulting to some extent from the character of the blossoms, but more on that of the weather, which may be dry and genial during the first week and quite the reverse the second week in May. We have passed through too many blossoming periods to prophesy what the crops will be, and can only hope for the best—a bountiful harvest of fruit.

The season promises to be an active one in matters horticultural. Apart from the Exhibitions of the Royal Horticultural, Royal Botanic and National Floral Societies in London, the series at Earl's Court will be widely representative and attractive; then comes the great Fruit Show on the Thames Embankment, for which preparations are being made. In the provinces an increase of energy is apparent in fostering a taste for gardening by lectures and shows, while we have reason to believe high sanction will before very long be given to the provision of school and general experimental gardens in rural districts. The horticultural spirit is abroad, and never before was so much interest manifested in the ancient and beneficent art of gardening as at the present time in this country.

FORCED TURNIP TOPS.

UNTIL the recent cold north-east winds our prospect of an abundant supply of winter and spring greens was good, but the severe weather of the last month made sad havoc with all kinds except Reed's Improved Borecole and Carter's Purple Sprouting Broccoli.

Under similar circumstances in the spring of 1888 we, in common with many others, were driven to our wit's end to meet the usual demand for vegetables, and having plenty of Swedish Turnips at the farm we determined to force some of these into growth and use it as a substitute for Kale. We selected a quantity of roots with entire crowns and packed them closely together in cutting boxes, filling the interstices with old sifted potting soil, and placed them in the Mushroom house. In this warm, dark abode they soon produced growth 6 inches long, which made, in the words of Mr. J. Wright, "a distinct, excellent and useful dish." That gentleman also suggested at the same time that we should force some white Turnips in the same way, thinking "the flavour might be a little different though perhaps not better." We, however, had no white Turnips to spare at the time, and have not had occasion to force any until this winter, but now, having done so, our report is that the flavour in our opinion is not only different but decidedly better. The Swede tops, unless properly prepared before being cooked, have a rather strong, turnip flavour; also the colour is a little too yellow to be agreeable to some. Both these objectionable qualities are absent from the common Turnip top; indeed if they are forced in the same way as Seakale, and cut when about 6 inches long, they make a dainty, wholesome dish.

Those anticipating a scarcity of green vegetables or in search of greater variety will find a useful addition in both the white and Swedish Turnips treated in the way described above. The white Turnip top requires no preparation before cooking, but the flavour and colour of the Swede growths are much improved if the leafy portion is cut away before cooking, that being the part which imparts to them the rather strong flavour.

In many places common Turnip tops are much appreciated in the spring, hence those who take the precaution to clamp a good stock in early winter have the means at command of producing abundance of green in case of scarcity from other sources. We make several sowings of White Stone Turnip from the middle of July to the end of August on ground that has been cleared of early Potatoes, but those sown about the middle of August generally make the best roots for winter use. When they have ceased growing, and before severe frost sets in, we select the best medium size roots and clamp them in a cool shady place so as to keep them good as long as possible.

On the first opportunity after the middle of March it is good practice to plant a few score or hundred roots, according to the expected demand, 6 inches apart on ground previously dug and prepared for the purpose. These will meet the demand for "tops," and is better in every way than trusting to secure a supply from roots that may or may not have stood the winter in the seed bed. It should be borne in mind that Turnip tops grow very rapidly in spring and soon become too far advanced for culinary purposes, but if the tops are cut when about 6 inches long the season will be prolonged from secondary growths.—J. H. W., *Leicester*.

ROCK GARDENS.

(Continued from page 81.)

IN my former paper on this subject I mentioned some of the difficulties with which owners of rock gardens had to contend, I would now mention another, which is a very grievous one—the swarms of slugs and snails; those universal foes of the gardener whether he be a grower of flowers or vegetables. How many times has the kitchen gardener to mourn over the destruction of his young Lettuces which he has planted out with such tender care, all devoured in one night by these marauders, while the same thing often takes place with the tender young plants of annuals, and such succulent juicy morsels. The rock garden is their peculiar happy hunting ground, the stones afford them such delightful shelter, whence they can emerge at their own sweet will, and while the owner is indulging in peaceful slumbers they are very wide awake, and when he goes down to his rockery, what anathemas he is ready to heap on them when he sees that they have nibbled off some favourite whose opening beauties he had expected to admire. And these depredators are gourmets as well as gourmands, for there are some plants to which they are especially devoted. Thus I have never been able to keep *Tulipa Gregi* from them, and I have taken off a clump of *Puschkinia*

scilloides as many as eighteen in one morning, and yet the next morning have found more, while in an herbaceous border of a number of *Delphiniums* near to one another, I have known them to leave all others to have their breakfast off *D. belladonna*. But why, it may be said, do you not put zinc collars round them? Well, so I have, but with no avail. I believe they bury themselves in the soil around the plant, and then emerge at feeding time.

I have said that had I seen some of the rockeries I have since visited I should have made mine somewhat different. In one respect especially is this the case. I should not have made it quite so flat. Of course, such grand rockwork as Backhouse's is not much of a guide to a small bit like mine, and I think that some which I have seen have erred in the opposite direction; but withal, I should prefer that mine had a little more elevation. One often sees on the Alps many of these exquisite gems, growing high up, but on flat places, on patches of soft short grass, as I remember seeing *Silene acaulis* on a small patch on the top of the Col de Balme over Chamounix, where the ground was perfectly level, and where its beautiful little pink flowers contrasted so beautifully with the short green grass in which it grew—a view of floral beauty I shall never forget.

In selecting plants for the rockery persons had better make up their minds before what they wish their character to be, and select accordingly. As it was my idea that those which were to fill mine should be in the main of dwarf and low-growing habit I have only admitted plants of this character, except in a very few instances for special reasons; and I would add, that where there is room plants should be planted so as to form groups, and not to be grown as isolated specimens.

Acæna novæ-zeelandiæ is one of those low-growing plants which cover a good space, and through which many plants do not mind having to push their way. Its minute crimson spikelets are very pretty in themselves and the foliage is very small. I am not quite sure that it is perfectly hardy in our severest winters. *Æthionema grandiflora* is a very pretty plant allied to the Candytufts; indeed, I think this used to be catalogued *Iberis jucunda*. It requires a rich and deep soil. I grew it successfully for some years, but latterly it has not done so well, and has, I fear, been crowded out by other plants. The *Androsaces* form a charming company of beautiful rosy pink flowers; some are very easy to cultivate, others just the reverse. Thus *A. carnea* and its *Mont d'Or* variety *eximea* are plants I have never been able to manage, and I have rarely seen them well done except in pots; still, I suppose with care they can be managed. *Androsace sarmentosa*, a Himalayan species, spreads most rapidly and is very curious in its mode of growth. In the winter it subsides into little close growing rosettes, which would lead one to believe it to be one of the *Sempervivums*; as it commences growth in spring, then unfolds. The flower stem rises from the centre, and long thread-like creeping stolons appear, which take root and fresh plants are formed on them. *A. lanuginosa* is another very pretty species. The foliage is soft and silky, the flowers are bright rose with a yellow eye. Owing to the character of the foliage, in which wet is apt to lodge, it will be better to give this plant the protection of a glass cover during the winter months. I have found *A. villosa* most easy to grow—i.e., if I have it true. I should have had no doubt on the subject had not a friend who has much larger experience said he could not manage it.

The *Anemones* form an interesting group of early spring flowering Alpines (if the term is applicable, for several of them are natives). I have already mentioned *apennina* as a charming plant for the rockwork; there are, however, several others which we cannot do without. There is that brilliant *A. fulgens* and its Greek form most brilliant. *A. nemorosa flore-pleno*, the double form of our native Windflower, which, with its pure white star-shaped flowers carpet many of our copses in the early months of the year. *A. palmata* with its broad flat leaves, so unlike those of an *Anemone*, and its bright yellow flowers, together with its variety *palmata alba*, is a very beautiful species. *A. pulsatilla*, the Pasque Flower, abundant in some parts of our islands, is another of the genus which is always a favourite from its peculiar colour and curious fluffy foliage. I have it on the rockery, but I think it is more suited for the border. *A. alpina* is a charming species, but I have never succeeded with it. *Anemone ranunculoides* is a charming dwarf yellow flowering Wood Anemone of easy culture and very suited for a rockery. *Anemone sylvestris* is, as I have already said, a plant to be avoided for the rockwork, although in some parts of the garden it may be used as it is useful cutting, but on the rockery I have found it to be a great nuisance. *Arenaria balearica* is a useful little carpeting plant which may be placed anywhere on the rockery; it runs over stones, &c., where its pretty little white stars of blooms make it very pleasing.—D., *Deal*.

(To be continued.)

SUCCESS WITH ONIONS.

MANY are the complaints made by amateurs and cottagers respecting the failure of their annual spring Onion crop. Some say the seed was bad, others attribute it to a certain kind of manure, while a great many blame the soil they grew them in. This, no doubt, is partly correct ; but it is not in the soil itself, it is in the preparation. I think there is no vegetable except the Potato more valued by cottagers, certainly with none do they spend more time in trying to succeed. Some have adopted the ways and means suggested. My advice to those who have succeeded was to bastard trench the land in the autumn, incorporating at the time well decayed manure, also burnt refuse and soot, letting the land so treated remain until February, and forking it over on a dry day, afterwards treading or rolling the soil if light, but not if at all heavy, levelling the ground with a rake to make the soil fine to receive the seed, as nothing in my opinion looks so unsightly in a garden as an uneven Onion bed. Previous to drawing the drills, 1 inch deep and 1 foot apart, I find it a good plan to scatter sifted burnt ashes and soot with a mixture of Thomson's or any other good artificial manure, to be raked in after the seed is sown.

Some prefer beds 4 feet wide with paths between, and that may be good where the garden is large, but where space is limited I advise drawing the drills 1 foot apart, sowing plenty of seed evenly in the drills, afterwards covering the seed with a rake, edging the top and bottom of the bed to make all neat, not forgetting at the time of sowing to insert a good sized label with a name to each sort, also the date. After a time, according to the weather, the seedlings will appear, and as soon as they are large enough my plan is to go over the whole bed, each man taking one sort and lifting with a dibber and replanting to fill vacancies (if any) at 6 inches apart, at the same time drawing out all not required to be bedded in for use, or to be left to fill any vacancies that may afterwards occur. When the transplanted Onions have taken well to the soil I like to give the whole space between the seedlings a careful hoeing to lighten the soil and admit air. We can almost see the Onions grow after that. Very little work is then required besides keeping weeds in check, which are best done by the hand just previous to turning down the tops to help to ripen the bulbs. I generally give a good soaking of a mixture of manure, salt, and soot, in a liquid state (if at all dry), afterwards lifting the bulbs, and weighting each sort when the tops have been taken off the bulbs. Any cool Peach house or dry open shed is a good place to finish the drying in previous to tying them in bunches of seven or eight, which can be done any wet day, afterwards hanging them up in a dry, airy shed to be used as required.

I grow all pickling Onions by themselves, and sow these in May. The Queen is a gem for pickling, and is well worth growing in quantity as it is soon off the land. The sorts I have found best are—first, Veitch's Main Crop ; it is a splendid keeper, of good shape and hardy constitution, also a heavy cropper. It yielded with me last year at the rate of 26 lbs. of Onions to the square yard, or 25 cwt. from 104 square yards of land, some dealers fetching them at 6s. per cwt. Other sorts excellent to grow are Defiance, Rousham Park, James' Keeping, Banbury Improved, Bedfordshire Champion, only surpassed by the first named variety, Reading, Brown Globe, Giant Zittau, a grand sort when true, Danver's Yellow, good for early use, Nuneham Park, and White Spanish for cooking whole. All my Onions were grown last year on land facing east.—JOHN CHINNERY.

PREPARING YOUNG VINES FOR PLANTING.

HAVING very recently superintended the planting of some Vines prepared by two different methods, I am led to send you a few words on this subject. Probably there is not a system or method in the whole round of horticultural practice so obstinately stereotyped as that of preparing young Vines for planting as practised by the trade and the majority of private growers ; nor is there anything in which there is more room for a change that would be advantageous in all respects. As long as I can remember, and probably before that time, the practice has been to shift Vines intended for "planters" into 10-inch pots, and sometimes into a larger size, growing and trying to ripen them to the length of 7 feet, or more than that. Such pots are much larger than are necessary to produce the best possible description of "planting Vines." The evils of this large pot system are almost invariably aggravated by most careless and inefficient drainage, a too rich soil, and the application of bottom heat. This combination of circumstances produces long-jointed wood, that may look strong, but really is not so when condition is not reckoned by mere bulk. The character of the roots thus produced are long, thick, and fibreless ; having been surfeited in their infancy they are anything

but greedy feeders when placed in their permanent feeding quarters. Other unfavourable conditions to which the young plants are subjected are their being grown in too crowded a way, and sometimes too early in autumn turned out of doors, where the process of maturing is never perfected. Yet another injurious ordeal is forced on the victims by, in many cases, placing them for the winter in some shed, and their soil allowed to get dusty and dry, causing the destruction of any fibry roots they may have formed.

Am I wrong in saying that all this is irrational practice, and not in keeping with this age of advanced horticulture ? The method that my own experience and observation lead me to recommend as a departure from this stereotyped one is not to shift the plants into pots larger than 6 or, at the very utmost, 7-inch sizes, not to plunge them in bottom heat, not to put any



FIG. 32.—VINE FOR PLANTING.

animal manure into the soil, and to use a light rather than a heavy loam ; but after they have established themselves in the pots to feed them at the surface with some approved manure, now so easily obtainable. These conditions, in conjunction with efficiently drained pots, will not be productive of long and strong fibreless roots, but instead a pot full of roots of a very different sort, the top growth being short-jointed, stout, and well filled with material available for a good start when the planting time has come. Then as to top growth, the extreme length aimed at is quite superfluous. At the utmost 4 feet of a right character is ample length.

Material points gained by this lesser pot and bulk of plant are ease in packing and lightness in transit, besides the more restricted space in which a given number can be grown ; and

I am not more thoroughly persuaded of anything, after a lengthened experience, than that such Vines as I am recommending are much superior for planting to those reared in the old fashion. In 1874, for instance, I planted a range of vineries with Vines that I reared from eyes the previous season, all of which were grown in 6-inch pots, and their height restricted to 3½ feet—the point from which I wanted them to start into their permanent growths. These were rigid and upright, having prominent buds like Peas, and when turned out of their pots it appeared as if they had used every particle of soil, and when washed free from it looked like mops. They started into growth rapidly and with vigour. The permanent Vines were planted 12 feet apart, and brought away with three canes each. A good many temporary Vines were planted and restricted to one cane that was prepared for a crop the following year, when they were cropped to 14 feet of their length. All who saw this house of Vines agreed that they were wonderful young canes. The permanent Vines were allowed to bear a few bunches to each limb, and the supers fourteen bunches of no mean proportions each, and which they brought to fine maturity. The sorts were chiefly Black Hamburgs, with a few Gros Colman. After that season the supers were removed, all but one Black Hamburg; this bore splendidly the following year, it continues to do so still, and to show clearly where it was cut back to the first year.

In recommending this departure from the old stereotyped practice of preparing Vines in large pots with rich soil and useless lengths of growth for planting, I am doing so because I am thoroughly convinced of its being more convenient, less laborious, and productive of far finer Vines for the purpose they are intended.

I send you with this a sample of a Vine washed out of a 6-inch pot, and leave you to judge of the correctness of what I am recommending from the sample, which, as compared to a number of Vines I saw turned out of 11-inch pots last week, has six times as many rootlets. There is no greater mistake nor delusion than the big pot and long rod system for planting Vines; what we should seek for are a multitude of roots and concentrated growth.—D. THOMSON, *Drumlanrig*.

[We think the soundness of the principle advocated will be admitted by thoughtful men, and we add an engraving, reduced one-half, from a photograph of the example alluded to.]

FLOWERS FOR CUTTING.

GLADIOLUS OF THE GANDAVENSIS SECTION.

AMONG the varieties of the above are not only the finest of the Gladiolus, but they at the same time constitute the grandest floral ornaments of late summer and autumn. Though of easy culture, they nevertheless demand that a due regard be paid to their requirements. It must be admitted, too, that some members of the family display a certain amount of fickleness, for one season we find them displaying their charms in lavish beauty, and anon, for some years, refusing to exhibit themselves to any advantage. Indeed, some of the most beautiful sorts, examples of which are *Madames Desportes* and *Mabel*, will only live in this country one or two seasons, the latter is always difficult to procure, and this season it is not to be had at all. But while that is so there remains a sufficient number of sorts possessed of noble qualities, and which exhibit not the slightest taint of weakness of constitution. For cut flower purposes more ought to be cultivated. The progress made by Gladiolus is slow compared with many other flowers, but a decided advance has been achieved of late years. Sorts of robust growth, with long spikes of large shapely flowers, have been produced, and as these become cheaper many of them will displace sorts which we are perforce obliged to cultivate in quantity now.

Two years ago at a central autumn flower show I was drawn, as usual, towards the Gladiolus, and found in the trade section a stand composed of the older sorts, and which their owner told me were those his firm cultivated for exhibition over a dozen years ago, at which time they ceased exhibiting. The varieties at that period were the best that could be purchased; but when compared with other stands, furnished with the better forms grown now, the progress was apparent in a most striking degree. There are, fortunately, plenty of cheap varieties of the better types of flower of the present day, and a list of these will be subjoined. But first it is necessary to say that it is impossible to get even these fine in spike and flower, and equally impossible to ripen good corms if the treatment is not good. Many plants do fairly well when grown with others, just as Brussels Sprouts succeed planted among Potatoes or other growing crops. But as there are many vegetables which resent such treatment, in like manner does the Gladiolus. In addition to a large number cultivated in prepared ground I have

annually to plant a few hundreds along with other flowers; and it has been an unvarying experience that while *brechleyensis* succeeds fairly well, not one in a hundred of the *gandavensis* is worth lifting, and the spikes are always inferior. In the case of other growers I have seen the same characteristics demonstrated. They have begun Gladiolus culture on the lines I have advised, but as the corms increased, and for effect, some have planted in mixed borders or flower beds, and the result has invariably been disastrous.

In the north the practice of planting well started corms has become general in the last few years past. Some growers for exhibition purposes repot their stock, and transplant them like bedding plants. This I have never done, perhaps greatly on account of the number of pots it would take and the space to hold them; but I find the plants succeed perfectly placed out thickly in boxes. Even on the borders of cool fruit houses the corms can be started in the same way as Potatoes, with this difference, however,—that the Gladiolus must be placed on a 2-inch layer of leaf soil, in order that the roots may be preserved when being transferred to the open ground. The space required in which to grow a large collection of Gladiolus may appear to some as an amount too vast to be spared in a private garden. Perhaps it might be if the rule of planting a foot apart were followed. Last season I planted 150 in a 50 foot row, and a second 150 in another row 1 foot from the first; then a 2 foot space occurred, and the same rate of planting was repeated. It is thus very apparent that a large number of Gladiolus may be grown in a comparatively small space of ground.

The proper maturing of the corms is always a matter of much anxiety, for not only does the quality of the next season's flowers depend thereon, but in some cases whether corms will be left to flower at all. Three years ago I tried a method which I have since continued with good results. Its value was discovered in a simple manner, for I had noticed that early ripened corms left in the soil often went bad, and in order to stop this plants which were becoming yellow were lifted and laid on the surface of the soil, and in the same place they had grown in order to preserve the name. These, I noticed, became plump and ripened admirably; later lifted plants did the same, so that I made bold to lift the whole as the leaves turned yellow and left the corms to ripen in the open air.

The points worth emphasising are these: The corms increase in bulk, the vapour in the atmosphere appearing to supply a sufficient amount of moisture, not only to preserve them from shrivelling but actually to increase their size. The risk of roots protruding late in the season from the young corms is obviated, and the ripening process is perfected better than by any other method I have tried. Very late growths are finished under glass. There is, of course, a certain risk to be feared from frost, but that must be prepared for. I shall have something more to say about these plants another week.—B.

NOTES ON APPLES.

ON page 140 Mr. T. F. Rivers opens up a most interesting subject, and one also extremely useful in these days of extensive planting of fruit trees. Much has been written and spoken of the varieties of Apples to plant, but comparatively little has been said of those which should not be planted, more particularly from a remunerative point of view. The following, in my experience, are not to be recommended as market varieties:—

American Mother, one of the sweetest Apples grown, which only succeeds on warm soils, and is an especial favourite with insect enemies.

Ashmead's Kernel is a first-class dessert Apple, but of little value for market, being too small, and has not a good appearance. The improved type is a long way ahead of it, and I was pleased to see that the Royal Horticultural Society had awarded it a certificate of merit.

Belle Dubois, an immense Apple, but one of the worst croppers we have here, and is given to canker in our light soil.

Red Bietigheimer, or *The Rostocker*, I have never seen cropping well, and is of not much value except for exhibition.

Blenheim Pippin is still held by many to be one of the best Apples grown; but with all due respect to those who recommend it, I would not give it room in a plantation from which profit was expected. There are many varieties that would pay for themselves repeatedly before *Blenheim Pippin* will begin to be remunerative, and I should reckon on twenty years elapsing before a standard would produce a good crop, which is a large space in a person's lifetime.

Brown's Codlin, syn. *Queen Caroline*, is a model fruit, but not one of the most prolific on our soil. I have heard better accounts of it on heavier soils.

Cellini is one of the worst varieties in this neighbourhood, being

prone to canker. Fruit spotted and given to rot on the tree, and altogether unsatisfactory; stocks make no difference. Yet on some soils this is one of the best. Mr. Bunyard exhibited it grand at Manchester last October.

Dumelow's Seedling is a failure to a certain extent here, the trees cankering, and the fruit being much smaller than I used to have it on a heavier soil further north. Bramley's Seedling is much to be preferred.

Emperor Alexander is rather too shy a bearer to be recommended for market, but a good dish always tells in a collection. Gravenstein is also a shy bearer and of little market value, owing to that defect.

Margil is well known for its excellent quality, but is of little use for market, and on most soils is subject to canker.

Melon is one of those Apples that require an orchard house to secure the fruits first-rate, and is consequently of not much good as a rule for outside work.

Newtown Pippin, like the preceding, is another American Apple which seldom does much good in the open.

Northern Spy I have never seen cropping well, though it is one of the best in America. Pennington Seedling and Puckruff Pippin are two Apples of little value.

Waltham Abbey Seedling is, I think, over-estimated. It has not answered my expectation here, in spite of careful and good treatment.

No doubt the list might with advantage be considerably enlarged, and with benefit to the country, as our lists of Apples are becoming too large. At the same time, it is well to bear in mind that a variety which is poor at one place may be just the reverse at another. The failing of planters, as a rule, is the selection of too many varieties, some of which are almost certain to be unsatisfactory. Comparatively few varieties, carefully chosen as being suitable to the district, will prove all that could be wished, and will be a pleasure to all concerned.—S. T. WRIGHT.

THOUGHTS ABOUT TOMATOES.

(Continued from page 179.)

IN the pot culture of Tomatoes there are two common sources of failure, the one consisting in the transference of the plants from very small pots into very large ones crammed with rich soil, the other in the saturation of the compost with water immediately after repotting has taken place. In the first case the same evils result as those induced by too large borders, and in the other the plants are checked by the hesitation of the roots to penetrate freely into the sodden mass around them. Where, as not infrequently occurs, a plant is transferred from a 5-inch pot to one 10 inches in diameter, the latter should not be filled to the rim at once, but after packing soil firmly round the ball of the plant space should be left at the top for a subsequent surface dressing. And as respects watering, proceed cautiously for a few days. Let the fresh soil be just moist when used, not saturated, and only supply sufficient water to check evaporation until the roots are ramifying freely. The double mistake of giving a largely increased bulk of soil and watering freely is often made at the same time, and the result frequently is that the plants stand almost still for a time, then rush ahead into a luxuriant course of leaf and stem development at the expense of fruit.

While pointing out the risk of feeding Tomatoes too liberally a warning may be given against going to the other extreme. It is quite possible to grow them in too poor a medium. Two years ago the experiment was tried of potting half a dozen plants in some poor fibreless soil from which, so far as could be judged, every particle of nutriment had been extracted. The result was that the plants were puny, stunted, and almost worthless, the stems being attenuated, the leaves small and lacking substance. A top-dressing of fresh loam and bone dust, consisting of a handful of the latter to two quarts of the former, was prepared and applied. The effect was almost magical. The stems lengthened and thickened at once, the foliage improved in size and texture, flower clusters formed, and in the end a fair crop of fruit was gathered. The quantity of soil supplied may be small, but what there is of it should be good, as the plants must have something to feed on. Quality rather than quantity should be the watchword.

It has been sensibly suggested that raisers of new varieties should turn their attention to the production of disease-resisters. It is quite clear, from the abundance of varieties that are introduced only to prove commonplace, that the multiplication of Tomatoes on the old lines has gone far enough. Is there no Clark to give us a Magnum Bonum? There is room for development still, but it must be in a new direction—that of stouter, harder texture, and more robust constitution. The end in view may be thought impossible of realisation, but so it was in the case of

Potatoes until Magnum Bonum came; since then disease-resisting qualities have been held constantly in view, and hence the production of varieties of strong constitution, firm growth, and heavy cropping character that we now possess. Is there any reason why what is possible with Potatoes is impossible with the Tomato? It is not to be expected that such complete immunity from attack will be gained as to make outdoor crops a certainty in unfavourable seasons, but there is ample justification for the belief that attention devoted (1) to the production of varieties of stouter texture and more robust constitution, and (2) to a sound system of culture, inclusive of the careful provision of suitable food constituents, would meet with the reward of larger, better, and more certain crops.

In cropping qualities and good flavour we have now very little to complain of. The varieties promise to become as numerous as Peas and Potatoes. They have grown from a list of seven or eight twelve years ago to one of several dozens. At that time Orangefield, Large Red, Hathaway's Excelsior, Acme, and Hepper's Goliath were amongst the most popular, other favourite sorts being Vick's Criterion, Earley's Defiance, Trophy, and Green Gage. These are veterans now, and some of them "lag superfluous on the stage," but Hathaway's Excelsior and Trophy are deservedly grown still. Perhaps some of the others are also, under fresh names. Hackwood Park, Dedham Favourite, Perfection, Laxton's Open Air, Earliest of All, The Mikado, King Humbert, and others comprised a later generation, but some of them are already on the down grade. Then we had Conference, Ham Green Favourite, Horsford's Prelude and Challenger. Of these Ham Green Favourite is perhaps doomed to live the longest. There may be many who will question the wisdom of my choice when I say that if restricted to one variety alone Ham Green would be selected, but there are the powerful points of heavy cropping, handsome appearance, and rich flavour to be urged in its favour. It is a market and home Tomato of the utmost value. Its beautiful appearance sells it readily, and its incomparable quality secures for it a firm hold on the favour of every buyer or cultivator. It has the slight fault of not coming into bearing quite so early as some others, and it is therefore well to provide it with a precocious companion, such as the valuable Earliest of All. Of the others named Hathaway's Excelsior and Perfection are perhaps the pick, but there is room for expressions of opinion in favour of several which growers may perhaps avail themselves of. A distinct and highly promising yellow variety in the hands of Mr. E. D. Smith of Sheffield is likely to be heard of this year.

The white fly, which has given Tomato growers so much trouble in the past, has at last met its match. A large grower finds Calvert's carbolic soap a certain destroyer of it. Dissolve 1 oz. in a gallon of water, and syringe the plants with it on three successive days, thoroughly wetting the foliage above and beneath, and a riddance is effected.

Victory over a powerful enemy awakens cheerful feelings. Let me close, before they evaporate under the influence of piercing winds and frostbound soil, by expressing a hope, justifiable inasmuch as Tomato-growing is still in its infancy, that the time may come when we shall be favoured with bountiful crops, even if the seasons are not of the best. For the present we must, so far as outdoor crops are concerned, trust entirely to the weather, but in the light of what British perseverance and ingenuity have accomplished in the past there is hope for better things "in the long years to be."—W. P. WRIGHT.

As a large grower of the Tomato for market, and one who has successfully battled with the dreaded disease (*Phytophthora infestans*), I was especially interested in Mr. W. P. Wright's thoughts upon the subject as given on page 172. He there tells us "the Potato disease is spread by minute floating organisms termed zoospores, and that it is probable these zoospores are largely responsible for the spread of the Tomato disease." Undoubtedly our friend's thoughts are here not far wide of the mark. The dreaded Potato disease seldom makes its appearance on the haulm of our Potato crops until the latter portion of the month of July or early in August, and exactly the same may be said as regards the time when it first appears upon our Tomatoes. During the earlier months of the year the young plants of Tomatoes are usually pushed on in warm close houses where there is an abundance of atmospheric moisture—conditions most favourable to the development of the disease; yet it seldom appears before the time above stated, but after that time, although the atmospheric conditions maintained are not nearly so favourable for its germination as were those in the earlier months, yet it is almost certain to present itself in greater or less quantities.

I think there can scarcely now be a doubt that the same kind of zoospores, floating in numbers in the atmosphere, may germinate and produce disease upon either Potato or Tomato foliage, which-

ever they chance to alight upon, and also that the resting spores resultant from disease upon the Potatoes may in the next season be the origin of disease upon the Tomatoes and *vice versa*.

Now to the practical question of remedies or preventives, for the above premises being admitted as facts, we may as certainly look for the annual reappearance of the disease upon Tomatoes, as past experience has taught us we must do upon the Potatoes. Fortunately we have in the ammoniacal solution of carbonate of copper a most certain and efficient preventive if applied early in July before the disease has appeared and continuously afterwards through the season at intervals of ten or twelve days. As a proof of this I will describe my own experience last season.

Early in the summer I filled a large house with Tomatoes in pots. These grew rapidly and most vigorously for about three months, during which time they had set a heavy crop of fruit. Before any disease presented itself, which was not until late in July, I had gathered a considerable quantity of fine, well-ripened fruits of remarkably good flavour, and the house at that time was a beautiful picture, admired by all who saw it. When the disease did appear, owing to the several facts—firstly, that rain was falling almost daily; secondly, the roof being very flat and far from watertight, there was almost constant drip therefrom in and amongst the foliage; and thirdly, that I was unable to keep up any regular supply of heat in the hot-water pipes—it spread most rapidly.

Having read in the *Journal of Horticulture* of the value of the carbonate of copper solution, I determined to give it a trial, and therefore applied to the wholesale drug stores, but was told by them that they kept the copper sulphate but not the copper carbonate. I also saw in the *Journal* a method by which the sulphate may be converted into carbonate, I proceeded to put it into practice as follows. I purchased 4 lbs. of sulphate of copper and 4 lbs. of ordinary washing soda. I placed the sulphate in a wooden vessel and added thereto 9 gallons of hot water, stirring this vigorously until the sulphate was all dissolved. I then placed the soda in another vessel and dissolved it with a similar quantity of hot water. After allowing the two solutions to stand a sufficient time for the water to become cold, I poured the soda solution into the vessel containing the copper, stirring well to thoroughly mix the two solutions, the effect of this being to cause the sulphur to part from the copper, the former floating as a thick yellow scum on the surface of the water, whilst the latter settled to the bottom, having the appearance of a thickish brown mud.

The vessel was then covered with boards and left to stand quietly for twenty-four hours to give time for completing the partition and settling, after which the water with the floating yellow scum was most carefully poured off, leaving the sediment undisturbed. This was then collected in a pail and placed near the fire until the water was all evaporated, leaving it a dry, hard cake of a brownish orange colour, this being the carbonate of copper required, and which was stored away for use as required. This carbonate of copper is insoluble in water, but soluble in liquid ammonia. In using it I dissolved 2 ozs. of the carbonate in one pint of liquid ammonia, and mixed this in 20 gallons of water, keeping it well stirred up to prevent any settling and applying it as a fine spray with the syringe, using a jet thereon instead of a rose end, and breaking the jet into fine spray with the forefinger of the left hand.

During the time necessarily taken up in obtaining and preparing these materials the disease had spread itself so rapidly that there was not a leaf upon the plants unattacked, and the zoospores were being produced in such vast numbers that on commencing to cut away the greater part of the foliage they might be seen flying off in clouds. In spite of all these, however, the disease ceased to spread after the first spraying, and I continued throughout the remainder of the season to spray at intervals of ten or twelve days, thus protecting the young foliage as formed. I was soon able to clear away every leaf showing disease, and late in the autumn I had the house again well furnished with healthy clean foliage, and also, which was of more value, a good second crop of fruit, which continued ripening satisfactorily until considerably after Christmas. I have thus given as clearly as I can the methods I followed with the results, and the deductions I have myself drawn from them are that by commencing the sprayings with this ammoniacal solution of carbonate of copper early in July, before the disease has shown itself upon the foliage, I can practically bid defiance thereto, as I have proved most surely that its spores cannot germinate on foliage thus protected.

The Bordeaux mixture, consisting of a solution of sulphate of copper and lime, is too astringent, and is found injurious to the young tender foliage, but the A. carbonate solution seems to have no injurious effects whatever.

Referring to "W. P. W.'s" list of varieties I have grown Ham Green extensively, and believe none excels it in point of flavour;

but as useful and most productive market varieties I prefer Hackwood Park, and also a greatly improved form of Earliest of All, raised by Mr. H. Bell, Earl Howe Street, Leicester, and named by him Bell's Defiance. This is of more vigorous habit than is the original type, equally early and free, and produces handsome smooth fruits thicker and much more free from the objectionable corrugations than the original. I have grown the yellow variety in the possession of Mr. E. D. Smith, and have a very high opinion of its value. It is much the same type of growth, earlier, and free in fruiting, as are the best types of Earliest of All, the fruits being somewhat smaller, but very numerous.—W. K. W.

YOUNG VERSUS OLD VINE RODS.

WITHOUT committing myself to the assertion, or even admitting that young Vines are always to be preferred to old ones, I am yet of opinion that a change of rod is desirable more often than it is practised, even by many of our most experienced growers. All the while the old stems and rods continue to increase in thickness and present a natural or bark-enclosed appearance there may be no necessity to change this state of affairs, and a good example of what can be done in the way of building up and sustaining Vines in the best of health and productiveness may be seen at Longleat, or within view of where I am now writing. But where one such instance can be met with twenty other vineries would disclose a very different result. One of the principal causes of injury to some Vine rods has been the time-honoured, but most faulty, practice of annually scraping and dressing the rods with a strong compound; this unnatural proceeding has a most paralysing effect. Had not clay been used very freely in the concoction of many of the dressings, the ill effects of severely scraping the rods would have been even more quickly apparent; but no amount of clay or any other artificial covering would compensate for the loss of the thick, porous, moisture-holding bark. The natural and inevitable result of baring the inner or latest-formed bark to all vicissitudes of weather is a cessation of all further healthy enlargement of stem or rod, and it has been conclusively proved by experts that many of the old rods actually contract with age, this naturally checking a free circulation of sap, and, whether rightly or wrongly, it is considered a frequent cause of shanking.

Nobody knows the age of the Vines in the Black Hamburgh house under my charge, and all I can learn about them is that they are very old, being planted longer than anyone connected with the place can remember. Had I been in a position to form a fresh border and plant new Vines the old ones would certainly have been rooted out, for nothing could have been worse than the plight they were in. I never met with a worse case of shanking, light cropping only slightly preventing this. We have not wholly stopped shanking, but laying in fresh rods to take the place of the old ones and root-lifting soon restored matters to a more satisfactory state, and those old Vines will doubtless survive many years longer.

There are also numerous instances where the rods are in a fairly or even perfectly well clothed and healthy state, and yet a change may be desirable. Being of considerable age, and regularly moderately or closely pruned, they gradually become furnished with spurs that must be anything but good channels for conducting a flow and return of sap, the crops being so much the poorer accordingly. Then, again, those old spurs are apt to become far too long to be either pleasing to the eye or economical of space, and a change is therefore desirable. Sawing a few of these spurs at a time not unfrequently leads to the formation of fresh young growths from near the main rod, thus laying the foundation of new spurs; but, as a rule, it is a better plan to change the rods as well as the spurs. There ought not to be any necessity to cut out old rods till strong young ones are ready to take their place, preparing these occupying from two to four years, according to circumstances. The quickest way to refurnish a house with young rods without any loss of crop is to lay in a young growth at the lower part of the old rod, and another half way up the roof, removing a few spurs or laterals, if need be, in order to favour the development of the young canes, the latter being stopped sufficiently early to insure the proper swelling of whatever length is made. Some Vines would be capable of forming a rod stout enough to be fruited half way up the roof during the next season, reaching the top during the following year. In other cases it would, as before hinted, take three or four seasons for a full length rod to be formed. The present is the time for deciding on the requisite growths for extension.

These young rods must not be heavily cropped at the outset, or they will perhaps fail to progress satisfactorily, and it need hardly be stated that the lower spurs, or the greater portion of them, must be removed according as the young canes require all the space. I prefer to train the young canes directly over the old ones, and

strongly advise commencing a renovation of borders in the autumn following upon the formation of fresh canes. In some cases strong young canes are apt to produce bunches too large and loose in character to please those who prefer, rightly I think, to have them much more compact; but this will only happen the first season they are fruited, and if a little judgment is exercised in the selection of bunches, the scissors also being freely used, there may not be much to complain of during the first year even.

Whatever may be thought or said about the foregoing, there is no getting away from the fact, that unless fresh rods are laid in it will not be long before old rods hard forced fail altogether for at least one season. It once fell to my lot to take charge of a small span-roofed house of Vines, from which ripe Grapes were expected by its owner not later than April. These Vines had done fairly well for about six years, but were only a little larger than when they were planted. They had gradually got into a poor plight, till at last there were about as many bunches produced as there were rods. My remedy was the drastic one of clearing all out and planting more; but in all probability, if I once more took charge of stunted and comparatively worthless Vines, before clearing all out the attempt would be first made of laying fresh canes, and if there was not sufficient life left in the old Vines to form these young rods, then all should come out and others be planted at once. Quite young Vines are doubtless the best for hard forcing, as they rarely fail to produce good crops, but this seems to so thoroughly exhaust the rods that they are of little service in the following season. I experimented in this direction last year, and once more find that the old rods will give us few bunches this season. In some cases, however, a young rod was laid in, and from these have been produced far more bunches than are required.

The varieties thus experimented on are Muscat of Alexandria, Madresfield Court, and Buckland Sweetwater, the two former at any rate being among the most productive Grapes in cultivation. If my advice is taken, therefore, those who are fruiting small Vines planted out in forcing houses will take the precaution of laying in a young cane alongside each old one, and thereby guard against a probable failure next season. The only other alternative that occurs to me is to largely devote two compartments in a range of forcing houses to the production of early Grapes, preparing young Vines in one to be forced the next season, and then cut out, the same thing going on in the other, only in alternate years. This is not such a waste of house room as might at first sight appear, there being a variety of plants that thrive well with forced or growing Vines, while there can be no question about the great weight of fruit that can be taken from strong young Vines with their roots confined to narrow borders, no more space being required for Vines than is usually devoted to Melons and Cucumbers. —W. IGGULDEN.

THE FLOWER TRADE IN PARIS.

[Notes of a Conference held at the Hall of the Association Française pour l'Avancement des Sciences, by MR. H. L. DE VILMORIN.]

(Continued from page 192.)

FORCING LILAC.

THE industry of forcing the Lilac is one of the most important and most essentially Parisian amongst the various branches of floral horticulture. Although Paris cannot boast of its absolute monopoly, yet the trusses of bloom which are obtained in our city are amongst the most prized on all European markets, and I do not go too far in saying that the culture and forcing of the Lilac bring about a yearly circulation of nearly two millions of francs. On account of that great economical importance I may be permitted to enter into a few details regarding the industry.

The discovery, which is French, dates from the beginning of the present century, and is due to a certain horticulturist named Mathieu, who resided at Belleville, which had been for a long time the country of the Lilac (now within our fortifications). The centre of the production is at present Vitry-sur-Seine, and in that place alone some 650 acres are devoted to the culture of the plants required for forcing. These plants blooming only between the fifth and eighth year, we may reckon that about one-sixth, or 110 acres, are worked upon every year, which furnish one and a half million of plants ready to undergo the process of forcing.

As is well known, it is the coloured Lilac of the sort known as "Marly" which is the best and most generally employed by the Parisian forcers, whether the flowers are to come white or coloured. The plants are dug from the open ground in the autumn, with the flower buds prominent but in a quiescent state, taken to the forcing houses and planted somewhat closely together in deep beds, after having been previously reduced by pruning to the shoots which are to bloom. Under proper treatment the flower buds

expand in the course of twenty to twenty-five days. The forcing goes on during nine months, and from six to ten crops are obtained in a year.

It is now generally admitted that darkness is not absolutely necessary to obtain white flowers by means of the coloured Lilac, provided the forcing is pushed on rapidly in a temperature of 65° to 77° and more Fahr. and in a confined atmosphere. The formation of the colouring principle appears to take place only between special limits of temperature, which are exceeded in cases of rapid forcing. White Lilac can be produced in glass houses briskly heated under the direct rays of the sun, provided the houses be hermetically closed. This, however is of little importance, as it is in the interest of producers to cover the glass houses with thick mats, which have the great advantage of preventing the loss of heat by radiation; but by the latter process the plants are much longer in recovering than when forced in the full light, yet this is not always of much weight, inasmuch as the Lilacs are often sacrificed after having been forced.

Knowing that the absolute exclusion of light makes a coloured Lilac produce white flowers it is possible, by a clever gradation of light, to produce curious variations of tints, such as those that are often admired in the shop windows of our large florists. These results are brought about by the simple and natural means of straw mats, which are skilfully perforated to admit

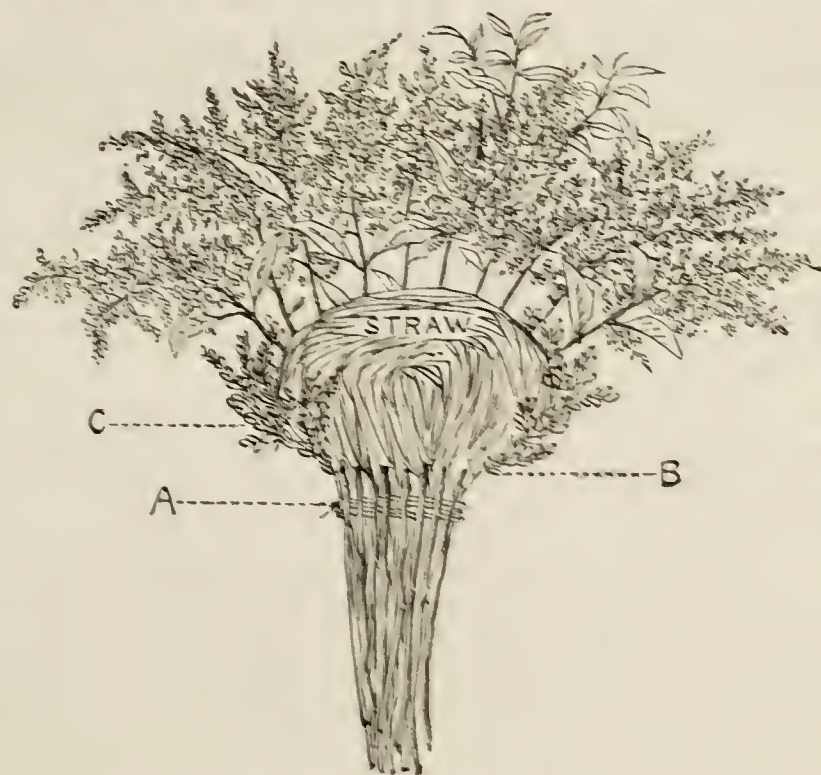


FIG. 33.—BUNCHING FRENCH LILAC.

the requisite passage of light. Were the plants which we have placed in the glass houses at the end of the autumn to follow a normal development in the artificial medium they would all bloom at the same time; it is, consequently, a task rather more difficult than forcing itself to delay the expanding of the buds in such a manner as to produce the trusses in succession, and at a time when Lilac is scarce and fetches a good price. Here various contrivances play a large part. Every grower has his own process, often a very simple one, such as giving the plants at the moment of lifting very rough treatment by laying them on the ground in a place just enough sheltered to prevent their losing the qualities which are expected from them at the required time.

The white Lilac is the result of the ordinary treatment; the rose Lilac, which has only been produced regularly for the last ten years, requires to be forced in a gentle way. It needs twice as much time as the white Lilac to bloom, and is therefore much dearer. The Persian and Charles X. Lilacs are but rarely forced; they do not give the slender, light, and graceful trusses which are obtained with the Marly Lilac. The latter variety, when treated by our best growers, acquires a whiteness, lightness, and grace which render it incomparable. The way in which a large bunch is composed with only eight trusses of bloom passed through a bundle of straw is one of the marvels of Parisian activity. As already mentioned, the Department of the Seine counts about twenty Lilac forcers, using from 300 to 350 glass houses or other structures. Every day the system seems to be more practised, and the market gardeners themselves, in order to turn to profitable account the heat of their modest frames, &c., excavate the ground one metre deep under their sashes away from the light. There they deposit the plants on the ground without covering their roots, and thus obtain along with the winter plants

they grow in heat some white Lilac, for which they find a ready sale.

Bunches of Lilac for vases are in great demand, and to produce the most graceful effect with a limited number of trusses the procedure is as follows:—A handful of damp straw is folded as represented, and tied at A, giving it the form of a Mushroom. The stems of the Lilac are forced through, the ends coming out at B. For hiding the straw and part of the stems a fringe of Box sprays is secured at C, and a large yet free bunch is provided.—EUGÈNE SCHAEFFEL, *Paris*.

[Our correspondent has obligingly sent us one of the bunches of white and tinted Lilac, as made by Mr. Roux, 22, Route Stratégique, Grand Montrouge, near Paris, one of the best French Lilac growers and forcers. The arrangement is pleasing by its lightness, freedom, and informality, and much exceeds in effect the close "lumpy" bunches that are so common with us in May as made with a far greater number of trusses.

(To be continued.)



EVENTS OF THE WEEK.—The annual Show of spring flowers at the Crystal Palace, Sydenham, will be held on Saturday, March 26th. The Brighton and Sussex Horticultural Association announce a spring Show for March 29th and 30th, while the Brighton and Sussex New Horticultural and Mutual Improvement Society also advertise a Show for April 5th and 6th, so that London-by-the-Sea will be well provided with shows this spring.

— THE WEATHER IN THE METROPOLITAN DISTRICT was during several days last week and early in the present one fine and spring-like, though the wind continued rather keen. Tuesday was duller, colder, and wet; yesterday (Wednesday) was dull, cold, and ungenial.

— WEATHER IN THE NORTH.—On the first three days of the week, ending 21st inst., 7°, 13°, 14° frost were registered here. A thaw then set in and was followed by a day of continuous drizzle on the 17th, and that by one of almost summer brightness and warmth. The 19th and 20th were dry and bright, with a sharp east wind; 5° frost are recorded this morning, 21st.—B. D., *S. Perthshire*.

— THE DUTCH HORTICULTURAL AND BOTANICAL SOCIETY has issued a list of the awards granted by its Committees during 1891, which occupies fifteen pages in tabular form. The names of plants with the authorities, the awards, the dates, and the names of the exhibitors are given in separate columns, the names being arranged in alphabetical order.

— GARDENING APPOINTMENTS.—Mr. E. Tapping, for the past three years foreman at Dropmore, Maidenhead, has been engaged as head gardener to Viscount Templeton, Castle Upton, Antrim, Ireland, and will enter on his new duties in May. Mr. Robert Craigie, foreman in the gardens of Sir M. W. Ridley, M.P., Blagdon House, Northumberland, has been appointed head gardener to C. T. Mander, Esq., The Mount, Wolverhampton.

— THE Preston and Fulwood Horticultural Society's Spring Show, held in the Public Hall at Preston last week, appears to have been a highly satisfactory gathering, the exhibits being numerous and of good quality, while there was also a large attendance of visitors. Bulbs were well represented, especially Hyacinths, and in many other departments the display was much superior to the majority of spring shows. Mr. Hanbury, M.P., opened the Show, on which occasion and at the lunch subsequently he made very interesting and appropriate speeches.

— IN reference to the INTERNATIONAL HORTICULTURAL EXHIBITION at Earl's Court, the market growers and salesmen of Covent Garden held a meeting at the Hummums Hotel last week to consider the best means of assisting in forming a representative display of market produce on June 6th, 7th, and 8th. Mr. Webber presided, and Mr. Milner explained that the Council of the Exhibition would devote £200 to this Show, to be allotted as the market growers should advise, and a sub-committee was thereupon appointed to consider the matter.

— FARNINGHAM ROSE AND HORTICULTURAL SOCIETY.—Kindly allow me to inform your readers that the date of the annual Show of the above Society has been changed from the 30th to the 29th June, in order not to clash with the shows held at Canterbury and at Eltham.—STANLEY EDWARDS, *Hon. Sec.*

— THE Dundee correspondent of the *Liverpool Journal of Commerce*, March 21st, 1892, states that, owing to the failure of the DUTCH POTATO CROP, large quantities of Potatoes are being shipped from ports on the north-east coast of Scotland to Rotterdam. During the season it is expected that over 1000 tons will be exported weekly from Dundee, Arbroath, Montrose, and Anstruther to Holland. The supplies are principally to be consumed, while there is a small quantity to be used as seed. Good prices are being obtained by the shippers.

— FRUIT FROM SOUTH AFRICA.—The Union Steamship Company's R.M.S. "Scot," which arrived at Southampton on the 17th inst. brought a further consignment of Grapes and Peaches from South Africa, which was placed on sale at Covent Garden Market a few days after, when the Grapes realised high prices, boxes containing about 20 lbs. net of white Grapes fetching 10s. to 10s. 6d. each, and similar boxes of black Grapes realising 12s. 6d. to 15s. 6d. per box. These Grapes were packed in cork dust and arrived in good condition. The Peaches also realised 8s. to 14s. per box.

— FLOWER BOXES FOR PARCELS POST.—Messrs. W. Allen and Co. (Limited), Butcher Street Works, Nottingham, send us a sample of their special boxes intended for the conveyance of fish, flowers, and game by parcel post. They are constructed of stout cardboard, in various sizes up to 14 inches long by 7 inches wide and 5 inches deep, and are formed of two cases; the inner one fitting closely in the outer case, and being furnished with tapes at the side, is readily lifted out when required without disturbing the contents. When the outer lid is placed on the package is remarkably strong and compact.

— THE BIRDS IN LONDON.—It is always a matter of interest to me to see what is going on in bird life in and around London. Having read in a Birmingham paper that magpies build annually in Kensington Gardens I tried to prove its accuracy or otherwise, and I am afraid the verdict must be otherwise, for I could neither find a nest or hear of one worth listening to. It is a strange season to see rooks nest-building and people skating in the parks at the same time, but such was the case last week. I was much interested to find the common wood pigeon or "queece" and a nest in the public garden at Lincoln's Inn, and a good sized rookery in Theobald's Gardens in the very heart of London.—J. HAM.

— MOUSE TRAPS.—It appears to me that traps of the figure 4 kind are very likely to be murder traps for several of our most useful insectivorous birds, such as hedge sparrows, wrens, and robins. If mice visit my bees, Peas, Beans, or anything in fact, I have no difficulty in getting rid of them with little penny wire and wood traps, or the small "steel traps" sold by most ironmongers. The latter are dangerous to the useful birds mentioned, unless care is taken to partially cover them, so that I usually set the wire and wood trap baited with a nut kernel divided or a garden bean, a hole being first bored through the centre with the point of a penknife to hang the bait on the hooked wire.

— MARKET FLOWERS.—M.M. J. B. Ballière et Fils, the well-known Parisian publishers, have just issued a work on Market Flowers, by M. Philippe L. de Vilmorin. The latter is the eldest son of M. Henri de Vilmorin, who is a familiar figure to many horticulturists in this country, and we learn with surprise from the brief introduction penned by the latter gentleman that the author's twentieth year had not been entered upon when the volume saw the light. Not only is the literary matter of a high order, and of a character to do credit to an experienced writer, but the work is replete with practical information on market plants and their culture. The book opens with some references to the great taste and love for flowers that everywhere prevail, and then a survey is made of the leading markets of the world, with special reference to Covent Garden. Turning then to the flower markets (les Halles) of Paris, the author describes the methods of conducting the sales, and goes on to indicate the sources from which the supplies are drawn, subsequently describing the principal plants grown and the methods of culture adopted. A volume of this kind cannot but prove of the greatest interest and value, and it is to be regretted that the fact of its being published in French will prevent many British cultivators deriving from it the pleasure and instruction that it is so well calculated to afford. Perhaps the highest compliment that we can pay to the writer is to say that the work would have been worthy of his accomplished father.

— DO CARNATIONS "RUN OUT?"—In a paper read before the American Carnation Society Mr. W. R. Shelmire says:—"That varieties run out in six years I do not believe. It takes that long or longer to get a new kind fully distributed; and I am quite confident that many of the older kinds can be found to-day growing as vigorously as ever. There is nothing inherent in the plants whereby they should not be as healthy after 100 years of propagation by cuttings as when they first saw the light of day. Disease may indeed get in its insidious work, but a seedling is just as liable to be so attacked as a kind that has been cultivated for years. Anyone who has raised seedlings must have observed the sickly appearance many of the plants present."

— DOUBLE PRIMULAS.—We have read with much interest the remarks of your correspondent "P. R. R.," on this beautiful class of flowering plants, and it is certain he does not overstate their value. There is one important point, however, that appears to have been overlooked by him, and that is their relative earliness in coming into bloom as compared with the single varieties. We have observed this for several seasons, and notably during the past winter, when our Snowflake, Carmine Empress, Prince of Wales, and other double varieties were in full flower quite one month before any of the singles. We have no doubt this information will be valuable to those of your readers who wish to keep up a succession of charming winter decorative plants.—JAMES CARTER & Co.

— SYMPLOCOS CRATÆGOIDES.—This is a hardy tree-like shrub which will doubtless grow in time to a height of 10 or 12 feet, and perhaps even to a greater size. The flowers, which resemble those of the Hawthorn, although they are rather smaller than the flowers of the Hawthorns of the Northern States and of Europe, are produced in the greatest profusion during the month of May. In the autumn the branches are covered with clusters of small fruits of the most beautiful and brilliant ultramarine blue. The colour of the fruit is the most remarkable characteristic of this plant, and it is this that makes it such a valuable garden plant. *Symplocos cratægoides* is distributed from Japan to Northern India, and, as is natural in the case of a plant that inhabits an area of such diversified climates, it assumes very different forms of foliage and of habit, and botanists have at different times bestowed upon it a number of different names.

— POTASH FOR FRUIT.—All kinds of fruit abound in potash, more especially in their seeds, says a correspondent. Lack of potash in available form for use is possibly one reason why fruit does not perfect as it used to do. In growing the finest Grapes some French vineyardists use no fertiliser except potash made by burning clippings from the Vines and twigs cut in pruning trees. It is probably true that a dressing of unleached ashes applied in the spring will make the fruit ripen earlier and attain higher colour and perfection. It is lack of potash that causes fruit at midsummer to remain several days without change. This is particularly noticeable in Grapes where the Vines have set more than they can perfect. In such cases mildew often sets in, and the fruit never fully matures. Potash aids not only in perfecting the seed, but in that mysterious process which changes the acid, astringent green fruit to the wholesome lusciousness that the same fruit attains when ripe. Whatever of sweetness the fruit has it receives through its leaves, but it cannot do it unless there is soluble potash to be taken up by its roots from the soil.

— IN noting the SEVERE FROST OF FEBRUARY, 1892, Mr. G. J. Symons has the appended remarks in the "Meteorological Magazine" for the current month:—"There is usually considerable difficulty in dealing with an intense frost. It is generally very local, not extending more than perhaps 20 miles by 20 miles—say 400 square miles, and in such an area the probability is that there will not be more than one station provided with verified instruments mounted in a proper screen; very often there is no such station, and then the question arises, Is it possible to utilise the miscellaneous records of which plenty are usually forthcoming, but as to which there is uncertainty: (1) if the thermometers ever were accurate; (2) if they have remained so, or have sunk 5° or 10° by spirit evaporating to the top of the tube, if they are of Rutherford's pattern, or if the mercury has been shaken out of place, if they are of Six's; (3) if their situation is such as to give even approximately correct results. In dealing with the recent severe frost we have had these difficulties to meet, and we have divided our summaries, giving first the actual minimum for the four cold days at all the stations from which we have heard, and at which verified instruments are duly

mounted in Stevenson screens. Unfortunately there is yet another source of confusion, in that apparently some observers either read their minimum thermometers at 9 P.M. instead of 9 A.M., or else they reset them at the latter hour. On the morning of February 17th the greatest cold was near the centre of England, the reading in the Stevenson screen at Loughborough going slightly below zero (—0°·5 F.). On the morning of the 19th it was even colder, but in another part of the country, viz., in the N. of England and the S. of Scotland; readings below zero in Stevenson's stands were recorded as follows: Hurworth Grange, Darlington—1°·0 F.; Newton Reigny, Penrith—2°·0 F.; and Norton Malton—6°·2 F. (—21°·2 C.)." Several tables follow, in which the records are given for February 17th, 18th, 19th, and 20th, the stations extending from Oxford, Cambridge, and Cheltenham, to Penrith, Darlington, and Durham.

— THE NUTRIENT VALUE OF VEGETABLES.—It is true that vegetarians show us that meat is not an essential in a healthy, strength-maintaining diet, and it may thence be argued that eating meat in Lent is not needful to keep up the strength; but the error here is in supposing that vegetarians live and keep strong on any sort of vegetable that it may happen to be convenient to procure. The flesh-forming elements of food that in ordinary circumstances are got out of meat in the daily diet must be replaced by a careful selection of pulse and grain when the meat is abandoned. If the fasting menu allows plenty of eggs, milk, and fish, and if Peas, wholemeal bread, and the like are judiciously supplied in the dietary, Lenten fare will do no physical harm, but perhaps sometimes may do good. It is abundantly clear that mere "good living" is no sort of protection against the current complaint, and very often a reduction of the grosser or even of the more dainty appetising elements of an ordinary well-to-do person's dietary may improve rather than reduce his vitality. It is such want of knowledge and forethought as trying to live on white bread, Potatoes, Brussels Sprouts, and pastry, that will bring rigid fasters to grief. So thinks the *Illustrated London News*.

— FREESIAS.—Having had great success in growing these lovely flowers, I think perhaps my experience may be useful to those who have not been quite so successful. My plan is to pot the bulbs the first week in September in 6-inch pots or 48's, which ought to be washed thoroughly, also the crocks. After placing a little old Mushroom bed manure over the crocks to prevent the fine parts of the soil stopping the drainage, I place eight good bulbs in each pot, covering them with an inch of soil. The compost I find most suitable consists of equal parts leaf soil, loam, a little Mushroom bed manure, and sufficient sand to keep the compost open. I now place the pots in a cold frame, withholding water until the bulbs have made a good start, afterwards removing them to a light airy shelf in a temperature of from 45° to 50°, as I find the flower spikes are much finer than when the plants are grown in a higher temperature. We have had as many as eleven flowers on a spike. After flowering I gradually lessen the supply of water, and as soon as the foliage has turned quite yellow withhold it altogether, at the same time placing the pots on a shelf in the full sun to thoroughly ripen the bulbs. In my opinion this is the secret of success. Each autumn I pot 250 bulbs. *Freesia refracta alba* is my favourite, but it does not grow so strongly as *F. Leichtlini major*.—G. JORDAN, *Harkstead Rectory Gardens, Ipswich*.

— PRUNUS HORTULANA.—The hardest puzzle in American pomology is the classification and nomenclature of the native cultivated Plums. Something over 150 varieties are known to cultivation, and these are commonly referred, loosely, to two species, *Prunus americana* and *P. angustifolia* (*P. Chicasa*). But the varieties represent at least two other species, and perhaps even more. One of these species, which appears to have escaped botanical recognition, includes a large class of Plums represented by Golden Beauty, Cumberland, Garfield, Sucker State, Honey Drop, probably Wild Goose, and others. The species appears to grow wild over a large part of our interior region from Kentucky and Illinois to Texas. It is readily distinguished from our other species by its long ovate-lanceolate and acuminate leaves, which have finely and evenly serrated edges, by long and glandular petioles, and by glandular and more or less pubescent calyx-lobes. The fruits are red or yellow with thin skins and more or less translucent flesh, a very thin bloom, and a juicy sweet flavour. The fruits are later than the Chickasaws, to which these Plums have been mostly referred for many years. For this species, which I shall describe more fully on another occasion, I propose the name *Prunus hortulana*.—L. H. BAILEY, *Cornell University (in American Garden and Forest)*.



ODONTOGLOSSUM CRISPUM VAR. NOBILIUS.

So many handsome varieties of *Odontoglossum crispum* have been introduced from time to time that it is always a matter for surprise when a novelty of exceptionally distinct character makes its appearance amongst the hundreds of imported plants. If all the varieties of this protean species which have received names and certificates could be seen in flower together side by side they would present a range of variation highly interesting as a study and attractive as a floral display. Yet, even now "new departures"



FIG. 34.—ODONTOGLOSSUM CRISPUM VAR. NOBILIUS.

are occasionally secured, though more rarely, and they are proportionately valued by their fortunate finders or purchasers.

The variety shown by Baron Schröder from The Dell Gardens, on February 9th last, received the distinctive and appropriate secondary title of "nobilius," and of which it was quite as worthy as the *Dendrobium* honoured with the same designation. Though new to the majority who saw it, this could not, however, be claimed as a novelty in the strict sense of the word, for it was exhibited at the Orchid Conference in 1885, when it was much admired; but as it had not flowered from then until the present year no further opportunity had occurred for comparison and testing its qualities. The Orchid Committee soon indicated their opinion of the plant's merit by the award of a first-class certificate.

As can be judged from the illustration (fig. 34), the flowers are of great size and fine proportions, the sepals and petals very broad, the latter regularly and rather deeply cut at the margin, and the lip beautifully fringed. The ground colour is white, and the exceedingly bold confluent blotches of rich bright brown impart a remarkable character to the flowers. The lip is of a size proportionate to the other parts of the flower, but the spots are smaller, though the colour is rich.—C.

CATTLEYA TRIANÆ.

THIS well known *Cattleya* is one of the most useful and easiest grown of the genus. A native of the Cordilleras of New Grenada, it is—unlike the *C. gigas* section—impatient of much heat. Grown in the *Cattleya* house proper, or failing that, a Fern house, it thrives without any special attention. It readily adapts itself to any form of culture; in baskets, pots, cylinders, or on blocks. I have even seen it flowering in pockets made in the concrete back of a fernery. From choice I grow my plants in pots, though I have nothing to say against the other methods named. I use good fibrous peat, well shaken out, two parts, live sphagnum, well cleaned, one part, with a good sprinkling of silver sand. The pots and crocks used are washed and dried. Everything used for potting is placed in the *Cattleya* house overnight to insure as uniform a temperature as possible when the plants are turned out. All things being ready, the plants are shaken clear of the old compost, the potting stick being used to remove what will not shake off. Having crocked the pots within 2 inches of the top, the plants are firmly potted to the level of the rim with a small rise to the centre, the surface being furnished with a few living heads of sphagnum at intervals round the rim or otherwise.

If any prove to be in a sickly state, the roots are washed, a neat stake being worked into the pot along with the crocks, when necessary, to tie the pseudo-bulbs to, so as to keep the plants firm. Small, perfectly clean crocks, are the best medium for these sickly plants to root into. When these invalids are comfortably ensconced in their nursery pots, the base of the leading growth is on a level with the rim of the pot, so that when healthy roots are made a layer of peat and sphagnum can be laid on without in any way disturbing them. Sickly plants thus treated generally turn out well the following spring. Potting *Cattleyas*, and indeed all Orchids, is a most important item in their culture, skilful potting being imperative if the best results are to be obtained.

This *Cattleya* can hardly have too much water during its season of growth. When growth is completed much less should be given, or, especially in the case of forward plants, a second growth will appear, setting the chances of flowering at a discount. Prudence should also be exercised in the use of the syringe as the growths approach maturity, as a little water lodged at the base of the sheath is sometimes known to cause mischief. Those that flowered early are now ready for potting if that process is necessary, while a few may extend the potting as late as the middle of May. It is better to pot a few when ready than to wait until the whole can be done together. I make it a practice to pot the plants as soon as the bud at the base of the leading growth is advancing.

A word about the right plants to pot. Small pieces usually undergo this ordeal better than larger ones. I have known many a small plant that would give but a poor return if not potted, or at least top-dressed annually, while large pieces go undisturbed two or more years and seem the better for it.

There are many varieties of this species. I should not like to say how many. In one nurseryman's catalogue now before me forty varieties are enumerated, though this large number is probably short of the mark.

The following varieties have the merit of being distinct and good, viz., *C. T. Dodgsoni*, a white flower of good substance, the lip being a rich crimson in front with an orange throat; *C. T. Hilli*, similar to the foregoing in petals and sepals, but with magenta at front of lip, the throat being of a duller yellow than *Dodgsoni*. This is a massive flower and very striking.

C. Trianæ Russelliana is a good distinct form, the petals being white slightly suffused with rose and waved. The lip is violet purple in front merging into rose, the edge being pleasantly curled.

C. Trianæ velutina differs from the type in its habit of growth and is very fragrant.—W. R. W., *Great Marlow*.

CÆLOGYNES.

WHEN large *Cælogynes* are divided they should be sorted into three sizes—those with the largest pseudo-bulbs, then those with small but healthy ones, and the remainder will be composed of the back portions of the rhizomes with two or three sound pseudo-bulbs or more upon each. Pans of any size may be filled with the two former, while the latter are placed thickly into 5 or 6-inch pans until growth commences. The pans for these are practically filled to within one inch of the rim, so that very little material is needed until they have started into growth. These have no more water than is necessary to keep them fresh and plump. Frequently these

make capital flowering pseudo-bulbs the second year. To accomplish this it will be necessary, if they break well, to give them another season more material in which they can root. Healthy roots are attached to the other two samples, and pans may be filled in which they are to grow and flower until the material is again decomposed or the plants become crowded. The pans for these should be about three parts filled with drainage and the plants well elevated above the rim. A few wire pegs may be necessary to secure some of the plants in their places.

After plants are divided they should be transferred to a structure that can be kept moist and the night temperature about 60°; under these conditions they soon establish themselves and commence root activity and growth. Although this is considered a cool house Orchid and is often recommended for cool houses, we have always found them to succeed best when assisted to make their growth in heat. The warmest corner of the Cattleya house is a capital place for them.

For a time Coelogynes will flourish in loam and sand, but we do not favour this material, because from the large quantities of water required during the season of growth it quickly becomes too decomposed for their well being. Those, however, who can command no other material need not despair of growing these plants, especially if they incorporate plenty of charcoal with it and a little leaf mould. The last they certainly like, but it has the same fault as the loam. The best material, however, is good fibry peat used in a rough state with charcoal and crocks added freely, sphagnum moss being used near the surface only, so that this can be removed and renewed annually. These plants succeed in wire baskets suspended from the roof. The flowers are so useful that they deserve to be more largely grown in this position for yielding flowers in a cut state.

PLEIONES.

These are growing freely and do well on a shelf in almost any warm house; in fact we have found them succeed as well in the stove as in the Orchid house. If grown in small, shallow pans they may be suspended from the roof. In such positions care is needed in watering. From the present time they must not be allowed to become dry. When in vigorous growth and rooting freely the pans may be dipped twice a week in weak liquid manure. Care is needed not to use this too strong or harm will result. The liquid used should be diluted with warm water so that it can be used in a tepid state. Soot water in a clear state is also beneficial for these charming Orchids. When in vigorous growth it is a good plan to surface the pans in which they are growing with sphagnum moss, which greatly assists in the retention of moisture about them.

PHAIUS GRANDIFOLIUS.

This old but useful Orchid, so often despised by those who are ever on the look out for novelties, proves to be an invaluable plant for conservatory decoration. If kept on the dry side while in these structures the complete rest while in flower is very beneficial. Those that have flowered may be repotted. The whole of the old soil may be shaken from their roots and the plants placed in a compost of loam, peat, sand, and a little decayed manure; good leaf mould may be substituted for the peat. The pots need only be drained on the same principle as would be followed for Crotons or Dracenas, and the plants should be potted half an inch below the rim of the pot instead of above it. After potting they should be placed where a moist stove temperature can be given them. Care is needed at first not to give them too much water, and the syringe should be used with caution. If the plants are kept wet and injudiciously syringed the young growths are certain to become spotted and disfigured throughout the season. If scale is noticed on the leaves sponge them thoroughly before potting.—ORCHID GROWER.

DENDROBIUM NOBILE.

THE specimen from which the enclosed photograph is taken is 3 feet wide and 2 feet 3 inches high, and has 600 distinct blooms. The compost I have used is two-thirds peat and one-third dried

cow manure; it has been in the basket three years, and last year it was admired by many visitors.

I have another specimen placed in a basket, at the same time in the usual Orchid compost, but this bears no comparison to the photographed one. The conclusion I have come to is that cow manure may be beneficially employed (as far as basket plants are concerned) for other members of the Orchid family. Thinking it may interest some of your many readers I have forwarded this brief account.—B. EVELEIGH, *Gardener to J. Perkins, Esq., The Cottage, Stoke, near Coventry.*

[The photograph represents a handsome healthy plant, bearing very fine flowers, and the variety is evidently an excellent one.]

CYPRIPEDIUM INSIGNE IN NEW YORK.

AN illustration has been forwarded to me depicting a house of *Cypripedium insigne*, as grown by Mr. W. G. Kimball, Rochester, New York, and which shows 500 remarkably vigorous looking plants bearing 2500 flowers. The plants are grown in small pots, because they are found to flower more freely than in large ones,

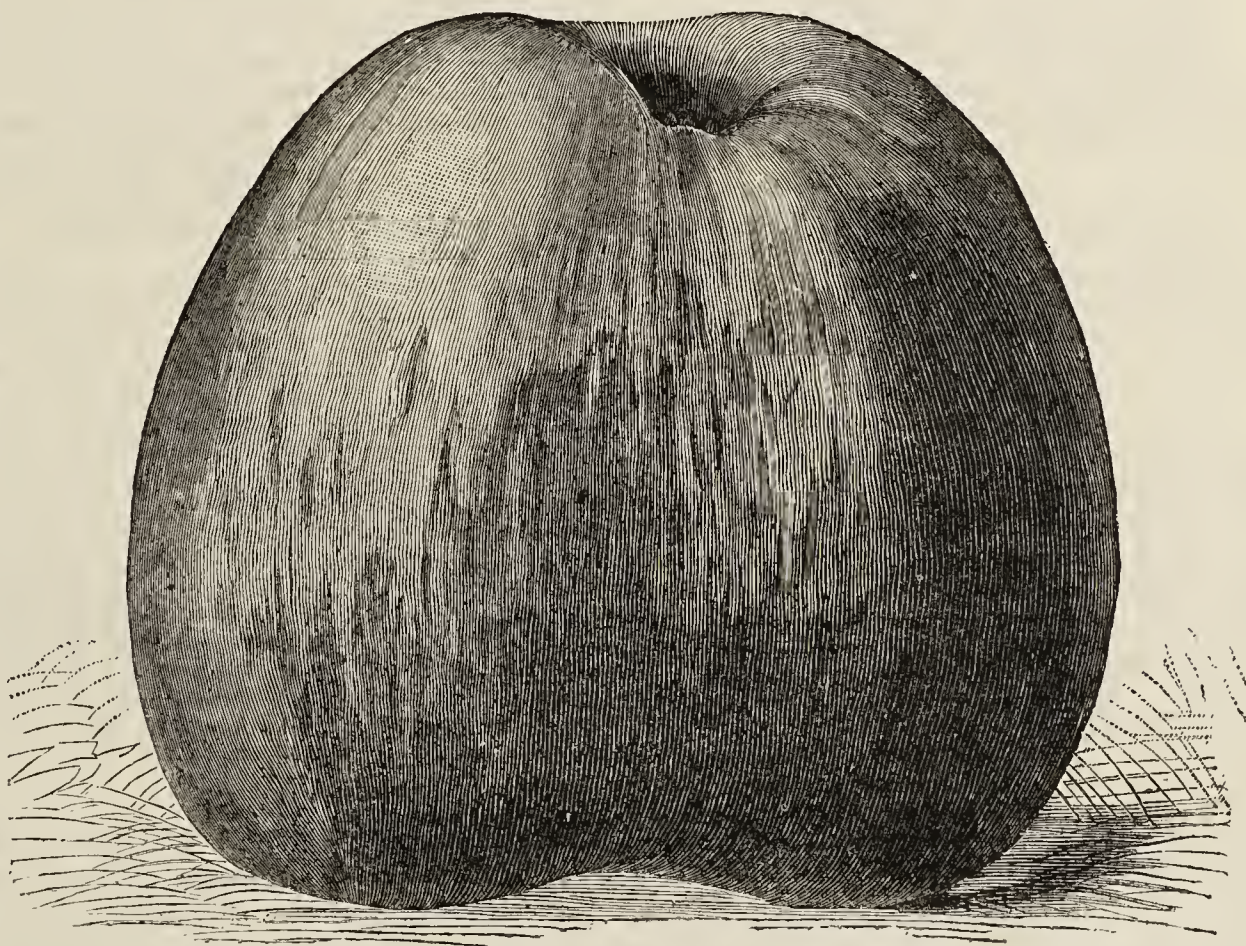


FIG. 35.—CHELMSFORD WONDER APPLE.

and in good peat and sphagnum, with ample drainage, and a night temperature of 55° for winter. They are found to be "as easy to grow as a Lettuce."—L.

APPLE CHELMSFORD WONDER.

SINCE it is generally admitted there are by far too many varieties of Apples in cultivation, new forms must possess some distinct feature of merit to be recognised by the Fruit Committee of the Royal Horticultural Society. The Apple in question, as may be seen by the illustration, is of imposing appearance, keeps sound till the present time, and is of good cooking quality. Chelmsford Wonder was accorded an award of merit last year, and the tree was said to be a good grower and free bearer. The following is Dr. Hogg's description of this Apple:—

"Fruit large, roundish, with blunt ribs; skin smooth, deep yellow, almost golden, marked with broken streaks of crimson over its entire surface. Where the fruit is much exposed to the light it has more colour. The surface is strewn with russet specks. Eye half open, with erect, somewhat divergent segments. Tube funnel-shaped; stamens median. Flesh tender, crisp, juicy, and sweet, with a somewhat brisk acidity. Cells open, abaxile, ovate; codlin-like. An excellent late-keeping Apple, in use up till March."

It was placed before the Committee by Messrs. J. Saltmarsh & Son, Chelmsford, who are distributing trees for planting.



ROSE SHOW FIXTURES IN 1892.

- June 21st (Tuesday).—Westminster (N.R.S.).
 „ 29th (Wednesday).—Brighton*, Ipswich, and Windsor.
 „ 30th (Thursday).—Canterbury, Eltham, Farningham, and Winchester.
 July 2nd (Saturday).—Crystal Palace (N.R.S.)
 „ 5th (Tuesday).—Gloucester and Sutton.
 „ 6th (Wednesday).—Croydon and Hitchin.
 „ 7th (Thursday).—Bath, Lee*, Norwich and Woodbridge.
 „ 9th (Saturday).—Reigate.
 „ 12th (Tuesday).—Hereford and Wolverhampton.†
 „ 14th (Thursday).—Chester (N.R.S.), and Helensburgh.
 „ 21st (Thursday).—Trentham and Worksop.
 „ 23rd (Saturday).—Bedale.
 „ 28th (Thursday).—Southwell.
 „ 30th (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.

I shall be glad to receive the dates of other Rose Shows for insertion in the next list, which will appear early next month.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

STRAY NOTES.

TEN or twelve years ago (or even less, for it came to be used thoughtlessly as a mere phrase) one heard people sighing for “good old fashioned winters,” *i.e.*, severe ones. I suppose the idea originated as an absurd sentiment in a succession of mild seasons, for one must think that the person who wrote—

“Five and twenty years ago
 Winter was a time of snow.
 Frost and snow, I well remember,
 Were the emblems of December.”

had some reason for making such an uncalled for statement. As a gardener and grower of Tea Roses, I am now beginning to long for some of the winters we had before the last eight or ten years. And, ere it be too late, I wish to put it on record, though the young may hardly believe it, that at that time our Teas were not regularly cut to the ground every year, and that I have had on some occasions on pruning my Teas to cut off shoots with 6 or 8 inches of healthy growth on them. Seriously, this succession of severe winters, without one break to give us hope, has done I believe very much to hinder the increased popularity of Teas which was at one time so much talked about. Who is going to grow standard Marechal Niels any more? I don't think I am, for one.

A strong, well-established standard “Niels,” after a mild winter, is a grand thing. Not only is it an immense help to the exhibitor (how few Niels one sees now, and how a good one lights up a box!) but it has always one or two blooms coming during the whole season, being very different in this way from the same plant as grown in a greenhouse or against a wall. With the true Teas, if the frost has left an inch of life, the flowers will very likely be as good, if not as early, as if there had been no injury; but with “Niels,” if the young wood is much cut by the frost, growth instead of flowers will be the result. And for the last eight years, at least with me, the young wood always has been killed back, with (to save from monotony) occasional interludes, as during the winter I hope I may now call past, of the plants being all killed outright. I think I have had pretty nearly enough of that frequently renewed row of Niels, whose very few blooms have almost always been spoiled by rain; but I am not sure. A rosarian is a sanguine mortal; and if I should chance to see any fine Niels from somebody else's standards I daresay hope would whisper that one of what I shall henceforth call “old-fashioned” winters must come round next time.

We had one morning in January 2° more frost than on any occasion during the long previous winter, and the damage seems to be very great. Still, it is yet too early to speak with certainty; in all but a few cases there is generally a little bit of doubtful wood at the bottom that may or may not throw out a bud, but my standard Teas appear to be quite killed. I have found no way yet of protecting them except digging them up and burying them bodily, and one wants to avoid this if possible, as they can hardly thus become “well established,” though I am not at all sure they may not do well. I think the collodion has done some good, but cannot say yet. My H.P.'s are a good deal cut by the frost, much more than last year, a disaster for which the sunless autumn must be held partly responsible. It is interesting to observe that, with La France as a notable exception, those with any of the Tea strain in them have generally suffered the most. Her Majesty (three out of four among the standards killed outright), Lady Mary Fitzwilliam, Jeannie Dickson, Germaine Caillot, Captain Christy, and most of the Victor Verdier race, are blackened down to the snow line, which, by the way, was very low, and one or two here and there, budded too high, have lost their lives. Reynolds Hole has suffered much, but it was badly ripened, and is at all times a badly constituted Rose.

The “Rosarian's Year Book” for this year is a good number, and it was natural that considerable interest should attach to the article on “Experiments in Rose Hybridisation,” by Lord Penzance, a large part of which has been printed in the Journal. It was, as might be expected, a capital paper, though the results of the experiments, from a florist's point of view, have not hitherto been very valuable. In selecting the Sweet Briar as a cross I think one point in its favour was omitted from mention—viz., that this variety of the wild Rose as far as I have seen grows naturally upon light, sandy, or gravelly soils. I used to know several places where it grew wild, and have never found it on strong or heavy land; and if Lord Penzance can raise any good Roses with a penchant for gravel, why even I may yet have a chance. The Rose Rob Roy, a cross between Général Jacqueminot and Village Maid, exhibited by him at the Crystal Palace I have before noted in the Journal, and thought that one specimen was by no means, as he says, “a very indifferent one.”

But the strange part in the article is on page 27, where it is stated that “the system I believe at present pursued, both in this country and in France for the production of new varieties,” is to “sow hips by thousands, gathering them promiscuously from the finest varieties without artificial impregnation.” Is this “more injustice to Ireland,” where the Newtownards Nursery has attained to so much success? It seems not; for what of the late Mr. Bennett, who was strictly “of this country,” and was, I thought, the leader of the artificial hybridisation of Roses? I must also think that the Messrs. Paul of Cheshunt and Waltham, and very likely others, do not now select their seed promiscuously, though no doubt it is still done in France, which accounts probably for the want of merit now to be found in French importations compared with the home products. Surely it seems strange that Lord Penzance should appear in his article to be ignorant of what has been done for years in the same line at home.

As regards the respective influences of the two seed parents on the new Rose I suspect we shall be considerably in the dark for some time without a long series of experiments. It is said that the seed of a self-fertilised Rose produces plants of great diversity, not only from the seed parent, but also from each other; and, by all analogy, unless a Rose “comes true to seed” itself, it cannot be trusted to produce a certain reliable result in crossing. But the Sweet Briar itself does come true to seed; it would therefore naturally be potential, as Lord Penzance's experiments showed, in crossing with garden varieties. I do not know the actual pedigree of some of our best new Roses; we have no “stud book” at present; and raisers may in some cases be naturally unwilling to betray the parentage of their successes; and if we look at the examples we have we are confounded. There is undoubtedly much to be learned and gained from the artificial hybridisation of Roses, and I hope that Lord Penzance may continue his interesting labours, that more nurserymen may take it up in England, and that Messrs. Dickson in Ireland may have “more power to their elbows.”—W. R. RAILLEM.

CULTURE OF THE TURNIP.

THE Turnip is a wholesome and much prized vegetable, and the earlier in the season that supplies of medium-sized clean roots are produced the greater is the value set on them. Given a light, sandy, loamy soil, of average depth and fertility, together with judicious treatment, and Turnips of the best description may be obtained. Stiff soil is most unsuitable to the production of high quality Turnips, but such land may be improved by additions of chalk, wood ashes, and leaf mould, well incorporated with the natural soil some months before sowing the seed.

In regard to manure, I prefer, in a general way, artificials to farmyard manure. Surface dressings of fresh soot and wood ashes applied to the ground immediately before sowing the seed, tend greatly to the production of a heavy crop of clean roots. If well-decomposed manure is given to the ground, it should be deeply dug into it as soon after the summer crops have been cleared off in autumn as possible, leaving the surface quite rough, the better to be acted upon by the frosts; and if the soil is of a stiff tenacious kind it should be ridged up in the process of digging. The ingredients already mentioned having been previously scattered over the ground for the purpose set forth above, level the ridges when the ground is dry any time in March. This being done, tread as much of the ground as it is desirable to sow for first crop, making it level with a rake before drawing the drills 1 foot asunder and 1 inch deep for the reception of the seed.

The first sowing should be made as early in the interval indicated as the ground will work, choosing a somewhat dry and warm situation, such as a border in front of a south or west wall, sowing the seed thinly in the drills, afterwards closing in the soil with the feet, treading and raking as before. Then place over the seed a length of garden netting supported by short forked sticks as a protection from birds. Sowings in proportion to the demand should afterwards be made at intervals of from two to three weeks up till the middle of July in cold (northern)

districts, and up to the middle of August in warm (southern) districts. The last sowing but one should be much more extensive than any of the previous, as there need be no fear of the crop running to seed, and, moreover, the winter and early spring supplies of Turnips depend almost entirely upon the weight and quality of the produce resulting from this sowing, the last sowing being made on the chance of the weather during the autumn months being favourable to the growth of the crop. It will be advisable to sow two or three varieties at each sowing to insure a good succession. A cool moist situation is preferable to a warm dry one for the May and June sowings. The seed may also be sown broadcast, but the method of procedure recommended above is preferable, especially where small sowings are made.

For early and general sowings Early White Strapleaf, Carter's Purple Top Strapleaf, Early Snowball, Webb's Climax, and Carter's White Swan's Egg, the latter a new and excellent variety sent out last year for the first time, and received with great favour, the flesh being of fine texture and the flavour good. Veitch's Red Globe and Chirk Castle are excellent varieties for late sowings. —H. W. WARD, *Longford Castle*.

CULTURE OF NERIUM OLEANDER.

WHY is this old, but ever beautiful flowering plant, not seen more frequently? we are led to ask, when seeing a well-grown plant in a pot in full bloom. Surely it is not on account of any difficulty in its cultivation, for I do not know a plant more amenable to ordinary greenhouse treatment than this. While some go in ecstasies over plants decidedly inferior in every way, this rivals the choicest in delicacy of floral colouring, and it is useful during a long period in summer and autumn.

Cuttings of the half-ripened shoots may be taken with a heel and inserted singly in small pots in a compost of one part loam, two parts leaf mould, and silver sand. If placed in a brisk bottom heat, and carefully watered, they will soon form roots and be ready for a shift into 4 or 4½-inch pots, using a little more loam in this potting. Another system of rooting these is by placing them in bottles of water which contain a little charcoal to keep the water pure, and not allowed to remain more than a couple of days without changing the water. In this way the cuttings root far more quickly than in pots if bottom heat is not available. After potting, keep them in a suitable temperature, and frequently syringed. If bush plants are required, pinch out the points, but for the first season the plants rarely attain a height of more than 15 or 18 inches before they break naturally and form a good head. As the roots fill the pots, transfer into 6 or 7-inch size, using three parts loam, some well-decayed manure and sand, taking care to pot firmly. This size will generally be large enough for the first season; in fact, we have flowered the plants with considerable success in 5-inch pots. When growth is completed, and the buds can be detected in the points, the plants may be kept somewhat drier at the roots, care being taken not to excite them too early, or much will be lost, and often the buds do not swell freely. When the buds are swelling weak liquid manure may be used advantageously two or three times a week. As the plants come into flower they may either be kept in the greenhouse, or removed to the conservatory, where they will stand out prominently at that season of the year. When flowering is over, we cut our plants hard back, place them in a little warmth, and treat them in the same way as from cuttings, potting or top-dressing, as is thought necessary, when the young shoots have attained sufficient length. Plants may be retarded considerably by placing them outside for a few weeks in the early part of the summer. I may here mention that quantities of bloom may be secured from plants grown in borders and trained against the back wall of a greenhouse. In this case the plants, after flowering, should have the longest shoots shortened each year. By doing so sturdy growths are secured, and the wall always presents a neat appearance.

The Oleander is subject to two very destructive pests—viz., mealy bug and white scale. The former may be easily removed by careful sponging with any of the advertised insecticides, but the latter is more troublesome, and far more difficult to eradicate, if sponging alone is resorted to. Several years ago we had some Acacias in pots which were badly infested with white scale, and the leaves being so small sponging was out of the question. About the beginning of June they were soaked in a pond of water which we have in the grounds, turned every day for four days, and then lifted out. The scale was found to be dead, and a good syringing made the plants look healthy. The same course is adopted with the Neriums if we see any trace of scale, and always with the same result. There is a white form

of this Nerium which is very pretty and well worth cultivation and our continental neighbours have raised several new sorts, but I cannot speak from experience about them.—R. P. R.

THE LAND QUESTION—ALLOTMENTS.

HAVING made the land question a study for years, with your kind permission, at this opportune time, I would like to offer a few remarks thereon, regarding allotments especially. To request a person say with £100 to lay it down that he might borrow £300, and then, so cramped, to expect that person to cultivate his allotment successfully, is to expect the improbable, and which nine times out of ten will not be realised—in fact, present difficulties are mainly due to lack of capital.

Being born and reared on a 7-acre allotment my knowledge is practical, and hence I know that nine out of ten of those who rely on aught save their own hard heads and strong arms will fail. My faith is, and has been for years, all the option of a cottage garden, and then allow those who love land cultivation to grow. Thrice I have attempted to secure such garden plots, but only once succeeded, though the system I adopted, when in 1868 I secured our Rectory field, I still believe to be one of the best practicable systems possible to connect our masses with the land. The plot was over 4 acres, and rent, without rates, £15. To meet this I let sufficient gardens at 10s. and 20s. each, and then turned over the rest of the field to the public and our children for a playground. Further, subject to my own agreement, all were at liberty to sell their interest who preferred doing so, and just at the time when death brought changes one person had £3 offered for his portion. Such spots I contend are nurseries where land lovers are reared.

As to entail and the like grievances, I cannot see how a good rich landlord has any more deteriorating effect than have those with capital in any of our other great fields of labour. Most certainly hereabouts our aristocratic landlords have more love for a prosperous tenancy than they have for rents to make success impossible. Profitable times locked up land, for then only the strong in funds or favoured could secure it, whilst now it is equally locked up by lack of profit, and artificial means in many parts are found necessary to let it. This is also notable, even noblemen southwards are now planting their estates with hardy fruits and vegetables for jam and market purposes, and it is from such these huge daily consignments that reach large populous towns are secured. This teaches, in thinly populous places especially, allotment holders must at least grow one thing well and in quantity to be worth sending long distances by rail. From all climes in all seasons we have competitors with brains as active as ours to contend with, and seeing that the survival of the fittest is Nature's law we must make our diagnosis of the difficulty without prejudice, and determine everywhere to retain and cultivate the more excellent.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street*.

BOUVARDIAS.

THE Bouvardia is one of the most useful winter flowering plants either for decoration or affording flowers for cutting for bouquets buttonholes, wreaths, or sprays. With the valuable addition to the list of varieties of late there is a good selection of colours ranging from pure white to scarlet. Many persons err in treating Bouvardias as stove plants, whereas they succeed well in a warm greenhouse temperature. The present is the best time to take the cuttings from plants, which should have been prepared by cutting down after flowering, and placed in heat a few weeks ago to induce them to break. I find 4-inch pots the handiest size for the cuttings, which are taken off while short and strong and placed under a handlight in the stove to strike. When rooted they are placed singly in 4-inch pots and arranged on a shelf near the glass in a warm house. The plants are subsequently shifted into 6-inch pots, and eventually placed in a cold frame, keeping them rather close until they have rooted in the new soil, after which the frame is ventilated freely. On warm days they are syringed when the frame is closed in the afternoon, which keeps red spider in check, and the shoots are pinched three or four times during the summer to make the plants bushy. Six-inch pots I find the most useful size to flower them in for our purposes.

The soil used is a mixture of fibry loam, leaf mould, a little manure from old Mushroom bed, and sand, adding also a little bonemeal at the final potting. When they have filled the pots with roots an occasional top-dressing of Clay's fertiliser or Thomson's manure will help them considerably, and they will keep their foliage down to the pot, nothing looking worse than bare stems with a few blooms on the tops. Before there is any danger of frosts at night they are removed to a warm greenhouse with a temperature of from 50° to 55°, where they are flowered, and give a good return for the trouble expended on them all through the winter when the flowers are particularly acceptable.

After flowering the plants are cut down and some are placed in heat to produce early cuttings, the remainder being allowed to break naturally, and when the weather is warm enough planted out on a warm border, pinched a few times, taken up early and housed. These come in very useful for cutting before the young plants afford trusses, after which the old ones are thrown away.

The varieties I chiefly rely on are singles Vreelandi, Priory Beauty Humboldti, Corymbiflora, Hogarth, President Cleveland, and Mrs Robert Green; doubles, Alfred Neuner, President Garfield, Hogarth Flore Pleno, and Sang Lorraine.—R. C. W., *Crosswood Park*.



PRESENT WORK AMONGST CHRYSANTHEMUMS.

THE present is perhaps one of the busiest months of the whole year for those who have charge of a large collection of plants, whether they be intended for the production of exhibition blooms, for home use, or any other purpose. The recent long-continued wintry weather delayed some operations, which necessitates extra work now that the weather has taken a change to that of a more spring-like character. I allude especially to the fear of removal of the plants from the greenhouse to cold frames during a period when from 12° to 15° frost was a nightly occurrence. During such weather as this it was decidedly risky to transfer the plants from the houses to the frames. In some cases they may have received a certain amount of "coddling." Some of the newer varieties are shy in throwing up cuttings, or they are sometimes weakened through the demand for them being so great the old roots are forced on in heat. The consequence is such plants quickly exhibit the effects of so severe a change in their quarters. Under such conditions those who kept their plants in the safe quarters of the greenhouse are at the present time more pleased with their appearance than those who removed them in the midst of hard frost and snow.

From this time onward the best place for the plants, for whatever purpose they are intended, is the cold frame. Here the growth is more "stocky," the plants being nearer to the glass, and if each stands clear of its neighbour they are all right for space. A thick bed of coal ashes is the best foundation for the pots to stand upon. This provides efficient drainage for surplus water passing through the pots, and prevents the ingress of worms, which do much harm to the roots in small pots.

Air should be admitted freely to the plants in favourable weather, tilting the lights on the opposite side from which the wind blows. At this time of the year, although the sun has great power, it is often accompanied by cold east winds. The admission of these in a direct manner ought to be avoided, as it predisposes to mildew.

Watering the plants must be performed with care. By carelessly using that which is drawn direct from wells or tanks, and consequently much colder than the soil in which the plants are growing, the colour of the leaves of the plants is quickly changed from the deep green, which is natural to well-managed plants, to the sickly hue which some exhibit when all conditions are not favourable. Tepid water ought to be always used at this time of the year. Thoroughly soak the soil, and wait until more is needed, in preference to daily waterings, following any stringent rule.

Potting the plants is important, and if this be neglected during the early stages success cannot follow. Allowing the roots to become matted together is decidedly wrong. When one pot is full of roots the plants should be shifted to the next size without delay.

The main body of the plants grown for large blooms or specimens will now require a shift into pots 5½ inches in diameter, this being a suitable size from which they can be transferred to those in which they are to flower (9-inch pots), except in the case of those cultivated as specimens, which require more root room.

It is a mistake to give the plants too much root space; rather than do that I prefer to place two plants in one pot at the final shift. Any pots 10 inches or 11 inches in diameter in stock can be utilised in this way. The compost employed for the present potting should have some "body" in it to give the plants a stout foundation for future growth. It is while they are growing in the next two months that their future strength is denoted. Although it is possible to have the stems too thick and sappy, if this is avoided they cannot be too stout. I like to see the plants thicken from now onwards. Soil devoid of richness is not good for the plants. Take, for instance, turf from pasture land much impoverished, or that from down land which overlies a chalk foundation, and which has received no manure in any form for twenty years, such soils as this need the addition of some stimulant. Ground or dissolved bones, or the various chemical manures, are good for enriching such soils; added at the rate of about 2 lbs. to every bushel of soil the progress of the plants will be much accelerated. The usual lightening materials of leaves, charcoal, and wood ashes ought to be added in proportion to the character of the soil if it be light or heavy. Firm potting must be practised to induce maturity as the growth proceeds by the encouragement of fibrous roots. I will continue the subject with reference to dwarf plants.—E. MOLYNEUX.

THE NATIONAL CHRYSANTHEMUM SOCIETY.

The annual general meeting of the above Society was held in Anderton's Hotel, Fleet Street, on March 15th last, when Mr. R. Ballantine occupied the chair, and there was a good attendance of members. The annual report of the Committee was presented, and stated that the Society numbers nearly 700 members and Fellows, and there are ninety Societies affiliated to it, with correspondents in many parts of the world. The three Exhibitions held during the year were superior in many respects to what was expected, regard being had to the uncongenial season; and at the great

November Show cut flowers and specimen plants were remarkably good, and the competition in all the leading classes was keen. During the present year Exhibitions will be held, as usual, in September and November; and, instead of holding a midwinter Exhibition, there will be a Show in the month of October. The work of the Floral Committee has been of a valuable nature, and although numerous flowers are staged certificates are awarded with great caution. The question of increasing the size of the stands for Japanese blooms having been much discussed, the Society is strongly urged to take action, and the Committee recommend a Conference being held at the time of the October Show in order that the question may be fully discussed. Differences of opinion exist among growers, and any suggested changes should be made only after the matter has been fully considered. The financial statement showed an income from all sources of nearly £800, including about £300 from the Royal Aquarium Company. Members' subscriptions amount to £200, and from affiliated societies for fees and medals have been obtained £108. On the expenditure side about £450 has been paid in prizes, inclusive of medals; and other items made up an expenditure of £835. The report and financial statement was adopted.

The election of officers was next proceeded with, and Leopold de Rothschild, Esq., was elected President for the current year; the names of Sir John T. D. Llewelyn, Bart., Mr. R. Smith, and S. Barlow, Esq., were added to the list of Vice-Presidents. Mr. Robert Ballantine was re-elected Chairman, and Mr. E. C. Jukes Vice-Chairman of the Committee; Messrs. R. Dean and C. Harman Payne, Secretaries. Twelve members of the Committee retired by rotation, and of these Messrs. T. Bevan, H. Shoesmith, G. S. Addison, R. Owen, W. Langdon, A. Taylor, and J. P. Kendall were re-elected; and the following were elected:—Arthur Veitch, W. Herbert Fowler, J. Brooks, E. Rowbottom, and J. T. Turk. Messrs. F. Cobbold and G. J. Ingram were appointed auditors. It was arranged that a general meeting of members should be held on one of the days of the November Show to give members an opportunity of making suggestions in reference to the work of the Society. Five new members were elected, and two societies were admitted to affiliation. The customary votes of thanks concluded the business of the meeting.

THE RUGBY AND DISTRICT CHRYSANTHEMUM SOCIETY.

THE schedule of this Society has just been issued, and in it the date of this year's Show is announced to be November 16th and 17th, the Judges being Messrs. Lewis Castle and J. P. Kendall. Sixty-four classes are provided, the prizes being substantial in all the principal open classes, both for plants and cut blooms; for thirty-six of the latter (eighteen incurved and eighteen Japanese, distinct) the first prize is £5, with a special additional 4-guinea prize of a combination eight-day clock aneroid barometer, and thermometers in a nickel silver stand. The balance sheet for 1891, included in the schedule, shows a cash balance in hand of £11, and besides this a cheque of £6 4s. was forwarded to the Gardeners' Orphan Fund as the result of a sale of plants, flowers, and fruits. The Society is evidently well managed, and is performing a useful work in the district.

A NOTE ON PHYLLOCACTUSES.

OF Phyllocactuses which are not generally known the following are worthy of mention:—*P. caulorrhizus*, which has handsome flowers 6 inches in diameter, the petals white, and the sepals pale green; *P. Jenkinsoni*, a hybrid or seedling variety, with large beautiful and richly coloured flowers of a brilliant crimson-scarlet hue, very free, and a favourite with many growers. Concerning this plant, as also in reference to the adaptability of Phyllocactuses as window plants, a correspondent writes:—"Cacti are associated with my earliest memories, for in a window at home we had a plant of *P. Jenkinsoni* and one of *P. speciosus*, each of which has flowered profusely almost every season for the last thirty years; and as pruning was frequently resorted to, their progeny are now innumerable. The plants were grown in the window during autumn, winter, and spring, being placed in the open air during the summer; and with such simple attention they have for so many years been a source of considerable pleasure." *P. multiflorus*, a floriferous form, with reddish-crimson flowers, the surface of the petals having a peculiar satin-like lustre, is a similarly useful variety; whilst one named in honour of the late Mr. Peacock is marked by a very rich shade of crimson.

Numbers of fine varieties and hybrids have been raised at various times, but there yet remains plenty of room for further additions to the list of useful Phyllocactuses. By crossing amongst themselves with the best of the *Cereuses*, or even with the *Epiphyllums*, some grand results might be obtained. The last-named cross has been attempted, but unsuccessfully, though if one has failed others might succeed, and a totally distinct race would doubtless be produced.—L.

FACTS ABOUT GRAVEL WALKS.

THE time-honoured practice of turning the gravel on walks annually or every second year is an excellent one in many instances, but in these days of cheap weed killers is not resorted to so often as formerly. Although weeds are easily kept under now the surface of the gravel becomes discoloured, and requires a little attention to keep it in a clean

fresh state. This, of course, can be easily accomplished by giving regravelling; but there are many cases in which the walks already contain a sufficient quantity of gravel, and a further addition would not only make them fuller than is desirable, but would also be the means of incurring unnecessary expense.

The present is a suitable time to give this work the requisite attention. In cases where weeds and moss abound an application of one of the advertised weed killers should be given a week previous to the commencement of other operations. The surface should then be shovelled off and swept clean with a stiff broom, to remove as far as possible moss, weeds, sand, and soil, which generally accumulate to a certain extent during the winter months. The surface may then be broken up to a depth of 3 inches and turned with a spade, leaving the top in a rough state for a few days, so that the drying winds and sun may make all parts easy to separate with a rake. If the gravel is of such a nature as to form a walk which will bind well in dry weather, and not become too soft in wet; after being broken up with a rake it will only require levelling, raking even, and well rolling to complete the operation, when a firm fresh-looking walk will be the result.

There are, however, many instances, in which the gravel to be dealt with does not possess the good qualities above described. Where there is too great a quantity of sand in its composition, and the gravel altogether of a fine description during dry weather, the walks made from such materials are satisfactory enough; but after heavy rains they become soft, and therefore unsuitable for their intended purpose. The best and most economical method of improving such materials is, after loosening the surface to a depth of 3 inches, and allowing it to become dry enough to work with facility, to sift out and wheel away the greater part of the sand. This is easily done by forming the gravel in a ridge along the centre of the walk, and taking out the material which will fall through a quarter-inch sieve, then returning the remainder in the form of a ridge to the centre of the walk again. When the sifting is completed, place a coating of newly slacked lime upon the gravel left in the centre of the walk, using the lime at the rate of one barrowload to ten of gravel. Mix these materials well together, and spread them evenly upon the walk. When the whole is completed, roll well with a heavy roller, place a quarter of an inch of fine gravel upon the surface to fill up interstices and give the right colour, then roll again. After the first thoroughly good rain repeat the latter operation several times in succession, the surface of the walk will then remain firm and solid. When the gravel has been relaid, if thoroughly well watered after the first rolling is given, it may be made firm at once by passing the roller several times over it; but the surface must be thoroughly wet or quite dry, otherwise the gravel adheres to the roll, and the work is only imperfectly performed.

These remarks apply to walks which were well made in the first instance; where this has not been done, 3 inches of rough gravel ought to be placed in the bottom.—H. DUNKIN.

LAURELS.

I SHOULD like to supplement the remarks of "B.," page 81, briefly, as Laurels are great favourites here for many purposes, but especially for growing under tall forest trees where the grass will not flourish. The soil being heavy the colour of the leaves is a deep green, and as the plants receive an annual pruning the growth is quite dense, although in many places not more than 3 feet high. In putting out young plants some manure added to the soil well pays for the trouble if rapid growth is wanted. Laurels of all sorts are very partial to it, especially if the subsoil is near the surface and of chalk. This Laurels object to, and its near presence to the roots in quantity quickly changes the colour of the leaves to a pale green, which afterwards deepens into yellow, and they subsequently succumb to a hard frost. Even if they do not die the colour is most objectionable; one always looks for a considerable depth of green in the common Laurel. Where chalk is close to the surface the difficulty may be overcome by making good sized holes and filling the space with any kind of soil to which manure is added freely. It is surprising for what a number of years the plants will flourish on the same site without any addition.

It is an easy matter to get Laurels to grow in strong, loamy, or sandy soils, but in a thin soil over chalk it is not. Many persons make a mistake with their Laurel bushes or hedges by refraining too much from pruning them. To obtain the best results the plants should be trimmed every year, always using a knife. The variety *rotundifolia* is infinitely superior to any other for making a neat hedge, its compact habit of growth fits it exactly for that purpose. My experience of the *Colchic* variety is that it is quite frost-proof. When growing freely it is a noble looking plant; the long, exceedingly deep green leaves have a bold appearance, and for forming a tall screen quickly it is the best of the family, as its natural habit is upright. Another variety, the *Caucasian*, "B." does not name. This is, I think, the most useful of all, and is said to be hardier than the common one. The growth is medium, very compact, the leaves long and narrower than any other, but of a dense green colour. For planting on sloping banks or by the margin of paths where a low but thick growth is required the *Caucasian* variety is undoubtedly the best.

The Portugal Laurel is a capital hedge plant. We have it 12 feet high. The plants were shifted to their present position six years ago and were of good size then. Abundance of fresh cow manure was worked into the soil a little distance away from their roots, and during the summer a thick mulching of the same ingredient was laid on the surface soil. This was repeated the following year. The present appearance of the plants justifies the method adopted to produce a quick growth and rich colour of foliage. This Laurel is especially amenable to pruning, additional growths being freely made as a result. As an evergreen hedge plant the Portugal Laurel has no superior.—SOUTH HANTS.

EDUCATION IN GARDENING.

WE announced some time ago that with the object of stimulating effort for the acquirement and dissemination of knowledge in gardening, or, in other words, for affording encouragement to gardeners who are members of horticultural or mutual improvement societies to contribute in the best form to the literature of gardening, a limited number of silver medals would be granted by the *Journal of Horticulture* during the present year for essays which should be deemed the best by competent adjudicators. We, of course, reserved to ourselves the right of presenting a medal apart from competition in recognition of specially meritorious work in our columns; and as we have granted one



FIG. 36.

to a most effective helper, the occasion is thought appropriate for the accompanying representation. It is highly appreciated, but for more than one reason the recipient prefers not to have the inscription published, and we conform to his wishes. "It is enough," he says "to possess the testimonial," and he would like for "Journal readers to wonder who the lucky man can be." Some medals have been allocated and other applications are under consideration.

DESTROYING SLUGS.

HAVING read the plans described by various correspondents, I give the one I follow, which differs slightly from that of "H. W." (page 163). Any mild evening about 6 P.M. I moisten some fresh bran with boiling water, then with a garden trowel I place small quantities about a yard apart on the ground. The same night about 9 P.M. I take some dry sifted lime and dust the heaps of bran and the earth around them, as I have noticed some of our friends coming to the feast and others going away. No doubt some will object to this night work, but I can always find more slugs at that time than in the morning. Fresh brewers' grains will do instead of bran, but these need not be moistened. I have had ducklings in the garden, but much prefer the above plan. I do not consider that boards, decayed or sound, laying about the garden, as suggested by "B. D. K." (page 181), would be very attractive, as to be effectual they would have to remain for some time.—DEVON.

IN addition to the boards suggested on page 181 I have for many years dealt with slugs as follows:—I first make the ground firm with my boot or the back of a spade, so that slugs may not bury themselves out of reach or sight; I then place Cabbage or similar leaves on the spot, sliced Turnip, Carrot, or Potato of inferior quality, over which I place the boards. This affords attractive shelter and food. The boards are lifted and examined frequently, and the vermin may be cut through with an old sharp-edged knife, or the slugs and eggs which are deposited may be destroyed with a little fresh quicklime, choosing a fresh place to set again.—J. HAM, *Astwood Bank*.

SOME of your readers appear to derive consolation from the thought that frost destroys slugs. One correspondent says the enemies are not often "caught napping." If he had been as wide awake as he should be he might have caught a few literally hard asleep—in fact, frozen—

and if he had tended them lovingly and thawed them gently he might have had the pleasure of seeing them wake up for the ducks. He evidently likes duck.—ROBERT.

AT page 164 mention is made of ducks being good slug destroyers. With me they did more damage to flowers than either slugs or snails, and they were the small duck, which preferred worms to either snails or slugs. In fact, I do not think they ever touched the latter. I have for years employed little clumps of moss on the sides of the walks from September till March. The borders freed from decaying material gave no harbour, and the whole of the adult snails were trapped in the moss. Any eggs that hatched into snails in June were easily dispatched by the timely application of a little quicklime.—W. T.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22ND.

THE greater portion of the available space in the Drill Hall was fully occupied on Tuesday last by miscellaneous groups of plants and flowers, with a plentiful representation of new and beautiful Orchids. Novelties were shown in good numbers also, for fourteen certificates or awards were granted by the three Committees.

A large framed portrait of Dr. Hogg, painted in oil by Miss May Rivers, of Sawbridgeworth, attracted much attention. The strong face—for it is strong—was depicted with life-like fidelity, and nothing but warm approval was heard in reference to the work of the talented artist.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair), with Dr. Hogg, and Messrs. T. Francis Rivers, G. Bunyard, G. W. Cummins, J. Willard, W. Warren, J. T. Saltmarsh, A. Dean, J. A. Laing, G. Wythes, G. H. Sage, G. Norman, James Smith, H. Balderson, G. Reynolds, Harrison Weir, and J. Wright.

Mr. Miller, The Gardens, Ruxley Lodge, Esher, sent a dish of very large Mushrooms, of which he is an expert grower on covered ridges in the open air (vote of thanks).

Mr. Leech, from The Gardens, Albury Park, again sent more clusters of his Lady Bird Tomato. The fruits were very small, but abundantly produced, and of good quality. This variety is said to have afforded a bountiful supply of ripe fruits throughout the winter. A cultural commendation was awarded.

Messrs. J. & M. Poupart, Twickenham, sent a market sample of Asparagus—a large flat bunch of remarkably fine heads, and of better colour than imported produce. A cultural commendation was unanimously granted.

C. E. Smith, Esq., Silvermere, Cobham, Surrey (Mr. J. Quarterman, gardener), sent a dish of Oranges from a seedling tree. The variety was named Silvermere Seedling. The fruit was of good quality, but not superior to varieties in commerce, and had a slight Lemon flavour. An award of merit was awarded by a majority of the Committee.

Mr. D. Roberts, gardener to Hussey Packe, Esq., Prestwold, Loughborough, sent a brace of Cucumbers—a new variety from Beeston's Prolific and Lockie's Perfection. The fruits were good in form and colour, and the variety was said to have afforded a plentiful supply all the winter. A majority of the Committee voted a cultural commendation.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), and Messrs. B. Wynne, H. Herbst, R. Dean, C. T. Druery, W. C. Leach, H. B. May, R. B. Lowe, G. Phippen, C. E. Pearson, H. Cannell, C. J. Salter, T. Baines, C. Noble, H. Turner, J. Fraser, G. Paul, F. Ross, G. Gordon, and the Rev. H. H. D'Ombraim.

Rose in pots were a pleasing feature of the display, Messrs. Paul and Son, Cheshunt, having well grown plants bearing fresh handsome blooms in many varieties. With them were associated varieties of the soft and bright tinted Azalea mollis with single and double Lilacs (silver Flora medal). Messrs. Wm. Paul & Son, Waltham Cross, also had a group of Roses, including several fine varieties, such as Princess May, White Lady, Lady Mary Fitzwilliam, Danmark, and the pale yellow Tea Medea.

The Rt. Hon. Lord Foley, Esher, sent a large bunch of Neapolitan Violets, comprising very beautiful blooms. C. J. Lucas, Esq., Warnham Court, Horsham (gardener, Mr. G. Duncan) showed two seedling Amaryllises with large flowers and of good colour. The Duke of Northumberland, Albury Park (gardener, Mr. W. C. Leach), sent an extremely dark Anthurium named coccineum, and from the Royal Horticultural Society's Chiswick Garden came a group of Clivias.

A small select group of Amaryllises from Messrs. J. Veitch & Sons, Chelsea, included four grand novelties, the first being Eclipse (award of merit); the next Chromis, rich deep scarlet; The Volunteer, bright scarlet; and Argus, smaller, but of dark colour. From the Royal Garden, Kew, were sent flowers of Camellia reticulata, with Acacias lineata, pulchella, and leprosa, all heavy yellow heads of flowers of various sizes.

Messrs. B. S. Williams & Son, Upper Holloway, had a tasteful and effective group of Azalea mollis, Clivias, and Orchids, very notable plants being Amaryllis Baron Palles, with a medium-sized flower of a deep intensely rich crimson tint right to the centre. The strangely marked Maxillaria Sanderiana, the dwarf Solanum capsicastrum nanum, and a neat little Euonymus, for which an award of merit was granted (silver Banksian medal). Messrs. Wm. Cutbush & Son, Highgate, contributed an interesting group of greenhouse flowering plants, Mignonette, Cyclamens, Epaeises, Boronias, and foliage plants (silver Banksian medal). Daffodils and early hardy plants in many varieties

formed a welcome group from Messrs. Barr & Son, King Street, Covent Garden, which found many admirers (silver Banksian medal). Mr. J. James, Farnham Royal, Slough, had a group of Cinerarias in grand varieties, both as to form of the blooms, variety, and range of colouring (silver Banksian medal). C. E. Smith, Esq., Silvermere, Cobham (gardener, Mr. Quarterman), had a small group of forced shrubs, the Forsythias and Pyrus malus floribundus being the most noticeable (bronze Banksian medal). The Duke of Northumberland, Syon House (gardener, Mr. Wythes), secured the first prize offered for a group of forced shrubs, the winning six comprising Azalea mollis (two), Lilac Charles X., Prunus sinensis fl.-pl., and Spiraea confusa (two). The same exhibitor was also awarded a bronze Banksian medal for a large group of forced shrubs, including Lilacs, Diclytras, Azaleas, Spiræas, Guelder Roses, &c.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), and Messrs. J. O'Brien, F. Sander, E. Hill, T. B. Haywood, H. M. Pollett, De B. Crawshay, H. Ballantine, T. W. Bond, W. White, C. J. Lucas, J. Jacques, A. H. Smee, and H. Williams.

The largest group of Orchids was contributed by Messrs. Sander & Co., St. Albans, and comprised some very interesting plants and flowers. Several superb varieties of Cattleya labiata were represented, the strange brownish Schomburghkia undulata, and the brilliant shining red Epidendrum aurantiacum were noticeable. Phaius assamica also attracted much attention, the flowers having yellowish sepals and petals and a white lip. Amongst others were Cypripedium Dayanum superbum, Batemannia Burti, Dendrobium Brymerianum, Ansellia africana lutea, and the bright yellow Spathoglottis Lobbi, and of Burlingtonia pubescens, a very freely flowered plant, was shown in a basket. The bright red Epidendrum dellense, and the distinct hybrid Phaius Cooksoni was exhibited in excellent condition, the flowers richly coloured, large, and abundant. A group of flowers of Dendrobium Dalhousieanum formed a fitting finish to a varied and charming collection (silver Banksian medal).

E. M. Mundy, Esq., Shipley Hall, Derby (gardener, Mr. Elphin-stone), had a remarkable group of the magnificent new Dendrobium Phalaenopsis, known as Schroederianum, the flowers of great size, and varying in colour from the richest crimson to the most delicate tints of pale crimson. A silver Banksian medal was awarded for the group, which only comprised a few very well grown plants. For one a first-class certificate was adjudged, and for another an award of merit, so that with three honorary recognitions the exhibitor had certainly every reason to be satisfied.

R. J. Measures, Esq., Cambridge Lodge, Camberwell (gardener, Mr. H. Simpkins), showed a new Odontoglossum bearing a large somewhat heart-shaped lip, white, dotted with purplish crimson, the sepals and petals small dotted at the base. The hybrid Masdevallia Hinksiana from M. tovarensis and M. Davis, was also shown, the flowers in their earliest stage having a yellowish tinge suggestive of M. Davis, and as they expand they become pure white. Sir T. Lawrence, Bart., M.P., Burford Lodge, Dorking, sent a seedling Dendrobium said to be a hybrid between D. speciosum and D. Kingianum, but showing much more of the characters of the latter; the flowers small, white, the lip dotted purple. A. H. Smee, Esq., The Grange, Carshalton (gardener, Mr. G. W. Cummins), showed flowers of Epidendrum Frederici-Guilielmi, with deep purple sepals and petals, the lip white at the base. Cut flowers and plants came from Mr. G. Le Doux and C. J. Lucas, Esq., the former having Odontoglossum odoratum and triumphans varieties, the latter showing Dendrobium nobile nobilius and Masdevallia simula bearing numerous minute flowers clustered at the base of the leaves.

CERTIFICATED PLANTS.

Ranunculus cortusæfolius (Lord Hylton, Merstham House; gardener, Mr. C. Wood).—A noble herbaceous plant, with extremely large rounded but deeply cut leaves, the flowers $2\frac{1}{2}$ inches across, with long, spreading, bright, shining yellow petals, like a gigantic reproduction of some of our native Crowfoots (first-class certificate).

Moorea irrorata (Royal Botanical Gardens, Glasnevin).—An interesting and distinct Orchid, in the style of a Peristeria, concerning the origin of which nothing is known, except that Mr. F. Moore purchased it in a London sale room as a species of Maxillaria. The sepals and petals are of nearly equal size, of a peculiar bright brown tint, white at the base, as also is the base of the lip and the column. The lip is small lobed and darkly veined on a light ground. The raceme shown had thirteen flowers (first-class certificate).

Dendrobium infundibulum, *Cassio Bridge* var. (G. Moon, Esq.).—A variety with broad white sepals and petals, lip having a deep orange central stain (award of merit).

Amaryllis Eclipse (J. Veitch & Sons).—A grand variety, the flowers very large, streaked and reticulated with bright red on a white ground. Extremely effective (award of merit).

Dendrobium Phalaenopsis var. *Schroederianum* (E. M. Mundy, Esq.).—A magnificent variety, with flowers $3\frac{1}{2}$ to 4 inches in diameter, the petals of great breadth and rounded, the colour an exceptionally deep, warm crimson, and the lip an intense magenta (first-class certificate).

Dendrobium Phalaenopsis delicatum (E. M. Mundy, Esq.).—A softly tinted variety, the lip veined with crimson, the sepals and petals nearly white at the base (award of merit).

Euonymus japonicus compactus (B. S. Williams & Son).—An extremely neat, compact variety, the leaves small, narrow, bright green, evenly margined with silver (award of merit).

Megaclinium falcatum (Royal Botanic Garden, Glasnevin).—A singular Orchid with a broad flattened spike bearing minute yellow and purple flowers along the margin (botanical certificate).

Rose Caroline Testout (Paul & Son).—A handsome new Hybrid Perpetual Rose with large full blooms and broad petals of a bright pink hue (award of merit).

Amaryllis Silver Queen (Paul & Son).—A finely shaped flower, the petals broad and rounded, soft crimson on a white ground, a white centre and white bars (award of merit).

Rose Danmark (W. Paul & Son).—A Hybrid Perpetual like a deeply coloured La France, very beautiful in bloom and bud; free, and of good habit (award of merit).

PREPARING SOILS FOR POTTING.

ON page 163 "G. W. W. M." objects to the use of freshly mixed potting composts, especially when soot or chemical manures are included, on account of the ammonia injuring the roots of plants potted in them. If the soot or manures are thoroughly mixed with the soil when about to be used I do not think there is any danger of injuring the roots, as the quantity of manure in contact with them would be very small. Are we not more liable to damage plants by placing these manures in actual contact with their surface roots when using them as top-dressings? but still we do so with good results when carefully employed. No doubt the method of preparing soils described by "G. W. W. M." is very good where it can be carried out, but it would require a good space in the potting shed to allow a quantity of soil to remain for days before using without interfering with other work which may require to be done in the meantime. I do not think growers of plants for market mix their potting soils until required for use, and where can we see healthier and better grown plants?—DEVON.

POTTING SOILS.

AS this is the season when the bulk of repotting is done, I should like to ask if it is necessary to have so many ingredients as is so often recommended in potting soils. I know some growers who mix peat, loam, leaf mould, bones, ashes, soot, and sand together for potting various stove and greenhouse plants. I know one gardener who frequently exhibited plants grown in this mixture; but I believe many plants would succeed equally well if potted in turfy loam, with plenty of silver sand, and leave the stimulants out until the roots have taken possession of the soil, then given in the form of liquid manure or top-dressing of the many fertilisers that are so easily applied.

I know there are cases where they are best mixed with the soil, but not in the generality of stove and greenhouse plants. But why is it a rule to mix peat with loam? This question often came before me as a young man, Which do the plants require, the peat or the loam? as plants are not often found in their natural state growing in peat and loam mixed together. Occasionally plants are found growing in peat which are also found growing in loam, but these are exceptions.

I have grown many plants for which peat and loam has been recommended, some in all peat and others in turfy loam with leaf mould and sand, and in most cases those grown in the latter mixture have been most satisfactory. I have been told the peat is put in to make the soil light; but in most gardens light turfy loam can be had, and soils can be lightened by the free use of half-decayed leaf mould, which is a more natural mixture than peat, with more food in it.

Some foliage plants, such as *Ficus elastica* and *Grevilleas*, have much better foliage when grown in peat, while such plants as *Crotons* have their markings more brilliant when peat is not used. When *Camellias* are grown in peat they have good dark green foliage with but few flower buds; but when grown in loam they often require disbudding, and this is often the case with other flowering plants when peat is mixed with the soil.—L. J.

SPRING SHOWS.

BATH.—MARCH 16TH AND 17th.

ALTHOUGH scarcely so large as preceding bulb shows, there was yet an excellent all-round display, very creditable to all the exhibitors. Hyacinths were shown in fairly large numbers, and all things considered in admirable condition. Four competed with eighteen distinct varieties, but Messrs. Cooling & Son were first with massive well developed spikes of *Charles Dickens*, *La Candeur*, *Morena*, *Macaulay*, *Fabiola*, *Princess Amelia*, *Grand Lilas*, *Mont Blanc*, *King of the Blues*, *Obélisque*, *Czar Peter*, *Lord Derby* (red), *Lord Derby* (blue), *Mr. Stanley*, *Leviathan*, *King of the Yellows*, *King of the Blues*, and *Cardinal Wiseman*. Mr. J. Ayres, gardener to T. W. Gibson, Esq., Clifton, was a creditable second; and Mr. W. Davis, gardener to S. P. Budd, Esq., Bath, third. Messrs. Cooling & Son were easily first for six pairs of Hyacinths, and Mr. W. Davis was second. For twelve Hyacinths, distinct, open to amateurs only, Mr. J. Ayres was first, having somewhat drawn examples of popular varieties; Mr. W. Davis being placed second for more compact spikes; the third prize going to Mr. G. W. Shelton, gardener to W. K. Wait, Esq., Clifton. Mr. Ayres was also first for six varieties, having massive spikes of *Lord Macaulay*, *Mina*, *Mont Blanc*, *Fabiola*, *Von Schiller*, and *King of the Blues*. Mr. W. Davis was second.

Tulips made a good display, the first prize collection of twelve pots (not less than eight varieties), staged by Messrs. Cooling & Son, being particularly good, and timed to a day. The varieties were *Dussart*, *Rose Aplatie*, *Cerise Grise de lin*, *Roi Pepin*, *Vermillion Brilliant*, *Chrysolora*, *Grand Blanche*, *Canary Bird*, *Little Dorrit*, and *Joost van*

Vondel. Mr. W. Davis was a good second, several double varieties being included in his exhibit. The best six pots of double Tulips were shown by Mr. J. Ayres, Mr. A. A. Walters being second; and for six single varieties Mr. Ayres was again first, staging *Joost van Vondel*, *Vermillion Brilliant*, *Cottage Maid*, *Keizerskroon*, and *White Pottebakker* in fine condition; Mr. A. A. Walters was second. The last-named was the only exhibitor of a collection of Daffodils, tastefully arranged with moss in a space 4 feet by 3 feet, and this exhibit fully merited the first prize awarded to it. Mr. Shelton was the only exhibitor of six pots of *Polyanthus Narcissi*, and secured the first prize. Mr. Davis was first for six pots of *Crocuses*, and Mr. A. A. Walters for a like number of pots of *Lily of the Valley*, the exhibits being good in each instance. Three well-flowered pots of *Amaryllis* gained a first prize for Mr. R. B. Cater, Bath; while for six *Cyclamens* Mr. M. D. McBennett, gardener to C. W. Mackillop, Esq., Bath, was first. In the class for *Spiræas* Mr. McBennett staged six well-flowered *Spiræa astilboides*, these easily gaining the premier award against fairly well-flowered clumps of *Spiræa japonica*.

Orchids were better than usual, and which is high praise, as they are always good at the Bath shows. For six varieties Mr. R. B. Cater took the lead, having well-flowered plants of *Dendrobium Wardianum*, *Dendrobium nobile*, *Cypripedium villosum*, *Odontoglossum Alexandræ crispum*, *Cattleya Trianae delicata*, and *Cattleya Pereivaliana*. Mr. S. Kerslake, gardener to Rev. E. Handley, Bath, was second. For three Orchids Mr. T. J. Tate, gardener to W. Pumphrey, Esq., Bath, was first with a good pan of *Cœlogyne cristata*, *Cypripedium insigne*, and *Dendrobium nobile*. Messrs. Cooling & Son were second. A large beautifully flowered specimen of *Dendrobium nobile* gained Mr. J. Rogers the first prize for one Orchid, the second going to J. T. Holmes, Bath, for a fine pan of *Cœlogyne cristata*.

Mr. McBennett was the principal exhibitor of stove and greenhouse plants, his first prize specimens of Indian Azaleas being large and well flowered. Mr. J. T. Holmes was first for both Ferns and fine-foliage plants, his groups comprising several large healthy specimens. Chinese *Primulas* were very fine, and with these Mr. Cater was first, and Mr. T. J. Tate second. Mr. McBennett staged good *Cinerarias*, and was first, the second prize going to Mr. Cater. Mr. A. A. Walters was first for well-grown *Mignonette*, and Mr. Shelton second.

There were two classes for groups of stove and greenhouse plants, and two competitors in each. The first honours for that to occupy a space 12 feet by 6 feet was won by Mr. R. B. Cater, who had choice admirably arranged plants, comprising well-flowered Orchids, *Clivias*, *Richardias*, and Azaleas, with Palms, Ferns, and Grasses. Mr. McBennett was a good second, the materials in this case not being so choice. Mr. J. T. Holmes was easily first for a group to occupy a space 9 feet by 6 feet, Orchids being prominent and good in this well-arranged collection. Mr. T. J. Tate had a fresh and light arrangement, and was second.

Cut Roses, though not numerous, were good for the time of year. For a box of twelve blooms Mr. Cater was first, his best being *La France*, *Niphetos*, *Rubens*, *Souvenir d'un Ami*, and *Niphetos*. Mr. W. Davis was second. Hand bouquets were a great feature. Mr. C. Winstone, Clifton, took the first prize for a new departure as far as the Bath shows are concerned, this being what might be termed a combination of an ordinary and "fountain" or "shower" bouquets, the long streamers of flowers and greenery being most effective. The second prize went to Messrs. Perkins & Sons, Coventry, who had a very large but beautifully made conical bouquet.

Several excellent dishes of Apples were shown, Mr. D. Young being first with grand fruit of *Annie Elizabeth*, while Mr. E. T. Hill was second with *Spring Ribston* in fine condition. For a dish of Pears, Mr. F. Mead, gardener to J. Stuckey, Esq., Bath, was first, having perfect fruits of *Josephine de Malines*, Mr. E. Hall being second with *Beurré Rance*.

Mr. W. Evry had first honours for an excellent collection of vegetables, and he was also most successful with *Asparagus*, *Seakale*, and a basket of salad, the best Mushrooms being shown by E. Hall, and the best Cucumbers by Mr. E. T. Hill.

Messrs. Cypher & Co., Cheltenham, were very highly commended for a non-competitive group of Palms and Orchids; this exhibit, which occupied a table 30 feet by 4 feet, being a great feature in the largest hall. Certificates of merit were also awarded to Messrs. Cypher for a fairly good form of *Dendrobium Phalaenopsis Schröderiana*, *D. nobile* *Cypheri*, a nearly pure white form; *D. nobile nobilius*, the richest coloured form in the section; *Dendrobium nobile Cooksonianum*, probably the best in the class, and a fine form of *Cattleya marginata*.

Another attractive group, occupying a table 20 feet long, was shown, not for competition, by Messrs. Cooling & Son, Bath. In this there were various Palms, Japanese Maples, Ferns, *Ericas*, forced Belgian Azaleas, white Lilac, *Staphylea colchica*, *Anthuriums*, several Orchids, and well-flowered Indian Azaleas. Conspicuous among the latter was a freely bloomed plant of *Niobe*, a large, semi-double pure white, and one of the best of its class, a bright brick red companion being found "In remembrance of Lady Hastings."

LIVERPOOL.

ON Tuesday and Wednesday, March 15th and 16th, the ninth spring Show in connection with the Liverpool Horticultural Association was held in St. George's Hall. Unfortunately for the financial position of the Show the Association is certain to have a considerable deficit for the weather, especially on the first day, was so bad as to make even those who always look on the most hopeful side fear for the

result. The second day brought a better attendance, but the loss will be great. The Show was opened by the Mayoress (Mrs. de Bels Adam), and although not nearly so extensive as last year it was marked by a pleasing brightness and freshness. The entries this year were 230 as compared with 250 last year. The Orchids were arranged, as usual, under the orchestra, the other exhibits occupying the body of the hall. There was a magnificent group of seedling Amaryllis from Messrs. Ker & Sons, Aigburth Nursery, which contributed the special feature of the Show. They were the result of crosses effected between some varieties bought on the Continent. Another feature was a splendidly flowered plant of *Cœlogyne cristata* carrying 520 flowers, which was exhibited by Mr. B. Cromwell, gardener to T. Sutton Timmis, Esq., Clevelly, Allerton.

Turning to the schedule the first class was for a table of miscellaneous plants, for which there were four entries, but only three tables had been erected, consequently the third prize group exhibited by Mr. Carling, gardener to Mrs. Cope, Dove Park, Woolton, had to be arranged on the floor. Between the first exhibited by Mr. J. Bounds, gardener to A. L. Jones, Esq., Oaklands, Aigburth, and the second from Mr. A. R. Cox, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, there was very little choice. The only fault to be found in the second prize was that, taking size of table into consideration, the centre Palm and Crotons at each corner were a trifle too heavy, but it was certainly the more naturally arranged, though not quite so fresh. Mr. Bounds had some very choice plants in his group, and it was marked by a fresh groundwork of Maidenhair Fern, but much of its natural effect was lost by too many plants being introduced. For ten pots of hardy herbaceous and bulbous plants Mr. Bounds was again first, the second position being taken by Mr. T. Moorhouse, gardener to R. Brocklehurst, Esq., Sandfield Park, West Derby; the third by Mr. T. Hitchman, gardener to Arthur Earle, Esq., Childwell Lodge. For one bouquet Mr. T. Wilson, gardener to O. H. Williams, Esq., Fulwood Park, Aigburth, took the first place.

Hyacinths, Tulips, and other bulbs were well shown and bright in colour. For eighteen Hyacinths, distinct, the last-named exhibitor was first, having John Bright, Baroness Von Tuyll, Robert le Diable, Czar Peter, Argus, Obelisque, Chas. Dickens (pink and blue forms), Mont Blanc, Vnurbak, La Joyeuse, La Grandesse, Fabiola, King and Queen of the Blues, Isabella, Schotel, and Gigantea. The second prize was awarded to Mr. Wm. Kneale, gardener to Lieut.-Col. Gaskell, Roseleigh, Woolton, for a capital selection; and the third to Mr. C. Waring, gardener to Mrs. Aiken. The same exhibitor was again first for twelve, being followed by Mr. J. V. Thompson, gardener to W. P. Sinclair, M.P., Devonshire Road, Liverpool; also for six distinct, for six (three bulbs in each pot), and for six pots of Daffodils. In other bulb classes the prizes were taken by Messrs. T. Hitchman, H. Holford (gardener to Miss Fowler, St. Anne's, Aigburth), W. Sivess (gardener to T. Smith, Esq., M.P., Princes Park, Liverpool), A. R. Cox, Chas. Waring, and C. Osborne (gardener to H. J. Robinson, Esq., Aymesbury Court, Woolton).

There were only two entries for six stove and greenhouse plants, and they were not what we usually see here. Mr. A. R. Cox came in first, and Mr. Cromwell second. Some very finely flowered plants of the good old *Dendrobium nobile* were shown for first, second, and third positions in class for one stove plant by Mr. J. J. Craven, gardener to J. Grant-Morris, Esq., Allerton Priory; Mr. W. Wilson, gardener to H. Cunningham, Esq., Gorsey Cop, Gateacre; and Mr. Cromwell. That useful flowering plant, *Imantophyllum miniatum*, was shown in perfection by Mr. Carling, who had a specimen carrying over twenty trusses of flowers of good colour. Mr. Kelly, gardener to R. Singlehurst, Esq., Endfield House, Aigburth, was a good second with the same variety; and for the third Mr. Cromwell exhibited a well-flowered plant of the old *Diosma*.

Orchids were not nearly so well represented as last year, but were fresh, clean, and well-flowered examples. For three, Mr. Cromwell was an easy first, having the *Cœlogyne cristata* Trentham variety previously mentioned, *Odontoglossum vexillarium* with twenty-three fine flowers, and *Dendrobium Wardianum giganteum*. The second prize went to Mr. J. Wilson, gardener to J. E. Reynolds, Esq., Sandfield Park, West Derby, who had a fine piece of *Dendrobium Ainsworthii*. Mr. J. Bounds was third. In the class for one Orchid, Mr. T. Shaw, gardener to John Wood, Esq., Hazlehurst, Mossley Hill, exhibited a beautiful example of *Phalænopsis Schillerianum*, Mr. Cromwell following with a gigantic plant of *Dendrobium fimbriatum oculatum* carrying some hundreds of flowers. Six *Dracænas*, pots not to exceed 10 inches, Mr. A. R. Cox first and Mr. Carling second. For four exotic Ferns, distinct, there was only one entry, that of Mr. A. R. Cox. Mr. Cromwell was first for one exotic, and Mr. Moorhouse second.

Azaleas were in good condition for the season, those exhibited by Mr. W. Wilson, who took leading honours for three and a single, being perfect in health, flower, and training. For three, the second place was awarded to Mr. Cromwell for well-flowered specimens. For four Azaleas in 8-inch pots Mr. C. Osborne staged fine examples of Raphael, Duc de Nassau, Pluto, and Mrs. Turner, Mr. Moorhouse being second, and Mr. Bounds third. Hardy Rhododendrons, with the exception of those shown by Mr. Moorhouse, who came in first for four and a single, call for no comment, the second in each class not being awarded, the third going to Mr. Bounds. This order was reversed in the class for six forced hardy plants.

The two entries for two bunches of Grapes displayed well preserved samples. First, Mr. J. Glover; second, Mr. T. Elsworthy, gardener to A. R. Gladstone, Esq., Court Hey, Roby. Certificates of merit were awarded

to Messrs. Ker & Sons for Amaryllis *Aspasia*, *Cassandra*, *Black Prince*, *Daphne*, *Enrydice*, *Imperial President*, *Sultan*, *Terentian*, and *Virgin Queen*, and a collection of Azaleas; to Messrs. T. Davies & Co., Wavertree Nursery, for a basket of Mushrooms and a stand of miscellaneous plants, highly commended; also to Liverpool Horticultural Co. for miscellaneous table of plants; to Messrs. Fishlock Bros., St. John's Market, and Messrs. J. Williams & Co., Mount Pleasant, Liverpool, for patent manures. The Chairman (Mr. White), Secretary (Mr. W. Dickson), Sub-Treasurer (Mr. Blackmore), and the Committee worked hard for the success of the Show.



FRUIT FORCING.

VINES. — *Earliest-forced Vines in Pots.* — The canes started last November, that were duly attended to in regard to heat, moisture, and other cultural requirements, also furnished with supplies of liquid manure and surface dressings of rich compost, have the Grapes swelled to a good size and these are changing colour. The supplies of liquid manure should be lessened gradually so as not to give a check, and the atmospheric moisture must be reduced, yet do not withhold it entirely, but allow a gentle circulation of air constantly, and damp the house in the morning and afternoon, as moisture is essential to the finishing of the Grapes, and does not inimically affect early Grapes. Maintain the temperature at 60° to 65° at night, 70° to 75° by day artificially, and between 75° and 85° through the day from sun heat, ventilating freely in fine weather.

Early Houses. — In the house started early in December the Grapes are rapidly advancing towards the colouring stage and should be afforded a thorough supply of tepid liquid manure, mulching with a little partially decayed rather lumpy manure. Stable manure with the strawy portion shaken out answers well after it has been properly sweetened. With the border in a proper state of moisture and the stimulus given the roots, little, if any, further moisture will be needed by the border until the Grapes are cut, but there must not be any deficiency, as it is important that the foliage be kept healthy. Continue damping at closing time until the Grapes are well advanced in colouring, after which reduce the moisture gradually; but provide a circulation of warm air by day and night. This is particularly necessary with Madresfield Court and other Grapes liable to crack, and where these are grown it may be wise to dispense with the dampings, covering the border with rough chopped straw, excluding water from the house after the Grapes show colour.

Vines Started at the New Year. — These will soon be advanced towards the flowering stage, and will need plenty of warm rather dry air when in flower, with a temperature of 65° to 70° at night for Black Hamburgs and similar sorts, and 70° to 75° for Muscats. All shy setting varieties must have their flowers gently rubbed with a camel's hair brush to rid the stigmas of the glutinous substance about the time the blossom is fully expanded, choosing a warm part of the day after the house has been freely ventilated. Varieties deficient in pollen may be supplied from those that afford it freely. On no account allow the thinning to remain a day longer than is necessary to ascertain the best set bunches. Free-setting varieties, such as Black Hamburg, may be thinned as soon as the berries are formed, but Muscats and other shy setters ought not to be thinned until the properly fertilised berries are taking the lead. No rule can be laid down for thinning, as the berries vary in size in different Vines of the same variety. Healthy, strong Vines swell much finer berries than those not so vigorous, but space must be left so that each berry will have room to swell without being wedged or crushed, yet the berries must be close enough to preserve the form of the bunch when placed upon the dish. When the Grapes have been thinned and are fairly swelling supply liquid manure in a tepid state, and mulch with about an inch depth of rather fresh lumpy manure, keeping it damp by sprinkling daily, especially at closing time. Admit air early and liberally as the heat increases, seeking to secure short jointed wood and thick leathery foliage. Close early, with plenty of atmospheric moisture, raising the heat from the sun to 85° to 90°, and allow the night temperature to fall to between 60° and 65°.

Late houses of Black Hamburgs may be allowed to start naturally next month, they advancing sufficiently by sun heat and a little artificial warmth on cold nights to set and have the Grapes thinned by early June, and the fruit, mainly forwarded by sun heat, ripens in late September, which suits them very well, for if ripened earlier they are liable to lose colour and quality by hanging, which is common to all black Grapes with thin skins; even Madresfield Court becomes quite red by November, yet none loses colour so badly as Hamburgs.

PEACHES AND NECTARINES. — *Earliest Houses.* — Wintry weather has prevailed lately, but the days have been bright, yet the wind was cold, and necessitated careful attention to ventilation, as cold currents cripple the foliage and give a check to the fruit, often causing it to fall; therefore admit a little air early, and allow the temperature to rise somewhat higher than would ordinarily be permitted rather than give air to keep it down, and in doing so cause an inrush of cold air. The

advance must be from sun heat, turning off the artificial heat and closing early. Outside borders must have sufficient protection against frost and snow, and inside borders will need due supplies of water or liquid manure. Stoning will soon be completed in the most forward varieties, when the final thinning of the fruit must be effected, and the border may be mulched with partially decayed manure 1 to 2 inches thick, and the night temperature may be raised to 65° or 70° in mild weather, 70° to 75° by day artificially, and 80° to 85° or 90° from sun heat. This will bring the fruit rapidly forward and insure its swelling to a good size, but it will not have the colour and quality of that given more time. Tie-in the shoots as they advance, regulating them so as not to be too crowded, as this lets more light to the fruit for colouring, and the wood becomes more solidified and better ripened for another year. In some cases close pinching the laterals is not good through starting the base buds, but extension only increases the vigour, and frequently results in the principal buds pushing laterals instead of forming fruit buds. Such trees must be marked for lifting at the proper time, and when a shoot becomes so gross as to push the whole of its buds it is best to cut such away altogether, as they have large sap vessels, and may fall a prey to gum, interfering with the proper training of the trees.

THE FLOWER GARDEN.

ZONAL PELARGONIUMS.—These can be planted out fairly well from shallow boxes of any description, but are more quickly effective when prepared in and turned out of 3-inch or rather smaller pots. Squares of turf with a hole scooped out so as to hold a little sandy soil and the roots of a single plant also answer well. Lose no time in completing the re-potting of all autumn-struck plants, those especially requiring early attention that are crowded in small pots, and keep them in gentle heat till well rooted, after which cooler quarters ought to be found them. If bushy plants are desired, pinch out the points a few days prior to potting. Taking cuttings from autumn-struck plants completely spoils them.

PROPAGATING ZONAL PELARGONIUMS.—The growth of old plants in pots and boxes is now sufficiently active to admit of the tops being taken off and rooted. It is a mistake to be in too great a hurry in this matter, as if the attempt is made to strike them while in a dry sapless state, most of them usually fail. Shoots from the variegated bronze and golden-leaved varieties ought also to be nearly or quite ready for taking off, leaving the later or weakly growths on longer to strengthen. They strike readily in sandy soil in a warm house. Spring-struck plants of the bronze and golden-leaved forms frequently surpass those rooted in the autumn. Ivy-leaf varieties may also be struck readily in heat at this period of the year.

SPECIMEN PLANTS.—Specimen plants, whether of Pelargoniums, Heliotropes, or Fuchsias, intended to be used in the flower garden should now be cut back freely, and so as to give them either good pyramidal or globular heads. Standards are, perhaps, the most effective, and can easily be had in the case of Fuchsias by trimming off the lower branches from the worst of the pyramids so as to throw all the vigour into the head. Keep the plants in gentle heat, and, when breaking afresh, shake much of the old soil from the roots. Trim the latter and repot, using pots of nearly or quite the same size as before, and a moderately good loamy compost. The growth will be free, yet sturdy, in a warm greenhouse temperature. Train Ivy-leaf Pelargoniums either to a globe trellis or round a few stakes in the form of a pyramid, and these will be found very showy if disposed at wide intervals in the flower beds.

THE KITCHEN GARDEN.

EARLY PEAS.—Those that were up before the bitterly cold March winds were felt present a very poor appearance at the present time. For several days they appeared to be dried up, and when a partial thaw came the plants looked much as they would if a hot iron was passed over them. In all probability those sown much later or which are only just coming through the ground will quickly surpass the damaged rows, and the propriety of hoeing up the latter may become apparent. Peas, if not too far advanced in growth, transplant readily, and if the rows are very gappy either break up some of them and make good the rest, or sow the requisite quantity of seed in 3-inch pots and place in heat to germinate. The latter process will be materially hastened by soaking the seed for twenty-four hours or till swollen considerably in warm water, prior to sowing it in the pots. The same remarks hold good in the case of the later sown rows, the planting out or transplanting being done in mild weather, and when the plants are about 2½ inches high. All should be earthed early and staked, a free use of spray being especially desirable, as affording a certain amount of shelter, also favouring an erect growth. The wrinkled seeded dwarf varieties, including American Wonder, British Wonder, William Hurst, and Chelsea Gem, may safely be sown now, and if the seed is sound it will germinate quickly, the plants coming on rapidly, the crops being ready to gather as early as from earlier sown round seeded varieties. These extra dwarf varieties may be grown profitably with or without small stakes or spray, and should be sown in rows 2 feet, or rather less, apart. In each and every case slugs must be kept away by means of frequent dustings of soot and lime, wood ashes also being distasteful to them and a good fertiliser, while sparrows can be best defied with the aid of the regular Pea guards, or substitutes for the same, such as galvanised wire netting bent over the rows and securely pegged down, or failing this benders and fish netting may be used. Several lengths of thread or strong cotton strained to short stakes and passed over and alongside the rows serve to baffle birds, and if the latter are not particularly voracious is effective enough.

SUCCESSIONAL PEAS.—Directly the Peas sown in February are coming through the ground, the time has arrived for sowing another row or rows of William I., or other approved early variety, and also one or more rows of selected second early varieties. If tall stakes are available sow either Telegraph or Telephone, good medium height substitutes being Carter's Stratagem, Pride of the Market, Hair's Dwarf Mammoth, and Webb's Wordsley Wonder. Either or all of the latter may be grown with or without stakes, and should be sown somewhat thinly in rows not less than 3 feet apart. The rows of Telegraph, Telephone, or any other tall-growing variety should be 6 feet apart, or as far asunder as the known height of the sort. It cannot be too often repeated that nothing short of damping and rolling the seed in red lead will long preserve it from mice, and even this is not sufficient protection if they are hard driven for food. In the latter case catch as many as possible with the figure of 4 trap, baiting with Peas.

ROYAL BOTANIC SOCIETY.

MARCH 23RD.

THE first spring Show of the season at the Royal Botanic Society's Gardens, Regent's Park, on Wednesday last, was even more satisfactory than usual, the exhibits being numerous, exceedingly bright, and the display altogether was very effective. The whole of the corridor and a good portion of the conservatory were occupied with non-competing groups and the entries in the various classes, but the former constituted the major part of the Show.

Taking the classes first, those devoted to bulbs were fairly well filled, though in some cases not quite up to the standard of former years. With Tulips, Messrs. H. Williams & Son, Fortis Green, Finchley, took the lead, followed by Messrs. Eason and Douglas in that order. Hyacinths from nursemens were not of remarkable merit, the first and second prizes going to Messrs. H. Williams and W. B. Morle. The amateurs' exhibits in a corresponding class were better, Messrs. Douglas, Eason, and R. Scott securing the awards. Mr. J. Douglas had the best twelve Narcissus in pots, very fine plants, Messrs. H. Williams and R. Scott taking the second and third places. Mr. Douglas also had twelve fine specimen Freesias, for which he gained the first prize, but he was second for Crocuses, Mr. R. Scott's premier twelve pots being extremely fine. Lilies of the Valley came from Messrs. Morle and Scott, and Amaryllises from Messrs. Paul & Son and J. Douglas.

Roses were capitally shown by Messrs. Paul & Son, who were first for six Roses in pots, also staging a large group of small Roses with Lilacs and Azaleas. Deutzias from Messrs. Douglas, Eason, and Nunn were of the usual character, as also were the Primulas from Messrs. Odell, Phillips, and H. Williams & Son, together with the Cyclamens from Messrs. Phillips, Mowbray and Edmonds. The Azaleas were not very remarkable, the best being from Messrs. Eason, Scott, Nunn, and H. James.

The non-competing exhibits included the following, for which medals were awarded:—A large group of Azalea mollis, Clivias, and Amaryllises, with new plants from Messrs. B. S. Williams & Son, Upper Holloway; Caladiums, Acacias, Heaths, Cyclamens, Bertolonias, and other choice plants from Messrs. J. Laing & Sons, Forest Hill; Ericas, Epacrises, Boronias, Mignonette, and miscellaneous greenhouse plants from Messrs. Cutbush & Son, Highgate; handsome Amaryllises and new plants from Messrs. J. Veitch & Sons, Chelsea; Camellias in pots and twelve boxes of cut blooms from Messrs. Wm. Paul & Son, Waltham Cross; Daffodils and hardy plants from Messrs. Barr & Son, King Street, Covent Garden, and Mr. T. S. Ware, Tottenham, the latter also taking prizes for bulbous plants and twelve Scillas. Mr. J. R. Chard, Stoke Newington, exhibited some of his tasteful Arcadian arch table decorations. Groups of Cyclamens came from Messrs. J. Odell, T. Walker, C. Edmonds, and the St. George's Nursery Company; fine Cinerarias from Mr. J. James, Farnham Royal; and Daffodils, Tulips, and Hyacinths from Messrs. H. Williams & Son, Finchley.

THE BEE-KEEPER.

APIARIAN NOTES.

BEE MORTALITY.

THIS has been greatest amongst bees located in broad, shallow hives with solid floors. These floors when damp cause the death of many stocks during the winter, and those who are adopting the primitive method of adding shallow raises during winter to preserve their bees are fifty years behind the times. The ventilating floor is altogether superior to that ancient method.

PEAT AS A BEE PRESERVATIVE.

Peat, as proved by your Annan correspondent, "F. McC.," is an efficient protector. Slabs of peat can be prepared for inner and outer walls, and in a dry state nothing answers the purpose better. Dry peat is a favourite medium for bumble bees to hibernate in,

as well as many other insects. A consignment of these bees came to hand a day too late, or they would have been sent to New Zealand by the late Mr. A. Neighbour. These bees were found and kept in the peat in flower pots, and stood in an airy shed all winter. As the spring advanced they crept out, when I fed them with honey, and returned them to their winter quarters in cold weather such as we have lately experienced. Had similar precautions been taken with those sent out, I believe they would have survived the journey, and the hint may yet be useful.

HYBERNATION.

There is not a day during the whole year, if the bees are examined, but some of them will be found in a torpid state. The queen also, during the height of egg-laying, takes her nap several times daily, in fact frequently, at short intervals. When she awakens from these short sleeps she either feeds herself or is fed by the bees, sometimes both.

Bees, like other animals, demand repose during a honey glut; so anxious are they that they not infrequently fall to the ground on their return journey and fall asleep there in the sunshine. This is different from the mere rest from the fatigues of their labours through long flight which bees usually take. It is not summer's sleep, however, winter's rest, or so-called hybernation that is the subject of this article.

I have already shown that bees sometimes pass the winter in an active state. When bees awake from sleep at certain times in winter, and there is food within reach, the hive is saved; cold, damp, and lack of food cause the death of many bees. But what has that to do with hybernating? some may ask. The answer can be given in a few words, Because bees do not hybernate. Bees simply perform all their domestic duties in relays. Some work while others sleep, but their rest is of short duration.

The present winter has been as favourable as any I have experienced for bees "hybernating;" but what do we find? Large quantities of brood in all stages, and the increase has been going on since the end of December last. Thus the whole subject is resolved into the question, Is it possible for bees to keep up the heat of the hive and carry on breeding to such an extent and hybernate at the same time? If I am wrong I shall be glad to hear the other side.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Wm. Sydenham, Tamworth.—*List of Exhibition Pansies.*
Thomas S. Ware, Hale Farm Nurseries, Tottenham.—*Catalogues of Hardy Perennials, Hardy and Greenhouse Climbing Plants, and Hardy Perennials.*



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Communications and Photographs (*Jack*).—We regret our inability to insert your contributions this week, but they will not have long to wait. There is only one way of determining the suitability of photographs for engraving, and that is by inspection. If you forward those alluded to we will return them if through any cause they are not used.

Late Questions (*W. W.*).—Your letter, with some others, arrived one post too late to be answered this week.

Cinerarias (*T. C.*).—The flowers did not arrive in good condition, but appear to have been well grown, and of good average quality.

Boxes (*J. Pratt*).—The boxes you have sent are light and useful, but the letter accompanying them is distinctly an advertisement, and could only be inserted on business lines by arrangement with the publisher.

Select Varieties of Narcissus Leedsii (*J. J. H.*).—You will soon have an opportunity of observing the varieties of these elegant and delicately tinted Star Daffodils at the metropolitan shows and meetings; but we readily comply with your request, and furnish the names of a dozen choice forms. Some are, however, extremely rare, and the prices are proportionately high, though the ordinary varieties are cheap enough. One of the best is Mrs. Langtry, of which a flower is shown in fig. 37, the perianth being white, with a tinge of yellow in the cup at first opening. Of others the very notable are Beatrice, pure white and of fine shape; Duchess of Brabant, white, pale yellow cup; Duchess of Westminster, white, with a delicate yellow and orange cup; Elegans,



FIG. 37.—NARCISSUS LEEDSI VAR. MRS. LANGTRY.

white, tinted with warm yellow; Gem, pure white; Grand Duchess, white, with large cup tinted orange; Hon. Mrs. Barton, pure white, the cup of varying delicate yellow tints; Kate Spurrell, white, pale yellow cup, large distinct flower; Minnie Hume, a beautiful white variety, the cup ranging from pale yellow to white; Magdaline de Graaff, white, the cup orange tinted, an extremely distinct variety; and Princess of Wales, white, very neat in form, the cup slightly frilled.

Forcing Strawberries—Writing for the Press (*Correspondent*).—An article from, presumably, a young gardener whose name we suppress, and whose address he withholds, cannot be inserted because closely written on both sides of the paper. As is stated every week at the head of this column, "articles for insertion should be written on one side of the paper only." Young aspirants to literary distinction will also find it to their advantage to leave ample space for writing between the lines of their MSS., as then the requisite corrections can be made. By noting these and profiting by them we are glad to say that some once crude writers have become so competent as to derive substantial benefit from their literary work. We may perhaps remind our correspondent that his spelling is open to considerable improvement, and his punctuation is extremely erratic. If he is a "man of metal" he will be glad to have these defects pointed out, and determine to overcome them; if he resents this gentle suggestion he will never become famous as a writer on gardening or anything else.

Asphalt for Pond (*S. Y.*).—It is not possible to make the bottom and sides impervious to water in the manner you describe. The ashes must be quite dry and fine, and they must be formed into a mortar-like consistence with boiling (not merely hot) coal tar, and placed whilst warm about 3 inches thick on a foundation of dry rubble, and whilst soft sprinkled with dry sand or spar, rolling lightly. The pond when so lined may hold water, but would be one of the worst possible receptacles for anything to grow in. We have made much rockwork, several cascades, and some lakes in cement, and never seen chipping from frost when good material was used and the work properly done. We advise Portland cement and sharp sand, half and half, not putting on the coat in layers but the full thickness at once. We have also used cement in making walks along with gravel in the following proportion—best

Portland cement (which must be fresh) one part, gravel screenings, as used for paths, or preferably granite, two parts, and never found it flinch in frosty weather.

Clerodendron Balfourianum (*H. S.*).—For shows late in August there is some difficulty in keeping plants back that have been grown and subjected to rest early in the previous season. When plants are needed for showing late they must be encouraged to grow after flowering early, and not compelled to rest too soon. There is a fear of losing this plant if kept during the resting period in a lower temperature than 50°. Under stove treatment it takes from the time it is started into growth about eight weeks to bring it into full flower. Ten weeks are necessary when plants are started earlier in the year. If your plant is started about the end of the first week in June you may either push it forward or retard it as desired, as the temperature and the season, whether bright or the reverse, will influence the growth.

Gas Lime Fresh from Purifiers (*Learner*).—The gas lime directly after its use as a purifier is a mixture of calcium hydrate (slaked lime) and calcium carbonate, with sulphite and sulphide of lime. The sulphite and sulphide are animal and vegetable poisons, and as such are destructive of parasitic fungi and injurious insects, and are largely used on bare ground for that purpose; but they are both converted into sulphate of lime by exposing the gas lime to the action of the atmosphere for some weeks or months. The gypsum (sulphate of lime) is a plant food, and the carbonate of lime (the hydrate becoming a carbonate) is useful in manufacture of plant food, but has not the value of either quicklime or chalk. Gypsum supplies plants with lime and sulphur, suiting Brassicas and Leguminous plants, and is usefully applied to soils poor in lime. It also absorbs ammonia, and is useful on that account where there is likely to be a loss of this valuable volatile substance.

Lawn Infested with Daisies (*Doctor*).—If the soil is deficient in lime, a sprinkling of that substance in a fresh state would be useful, but it must not be hot, or it will temporarily disfigure the lawn, and we should apply a mixture of lime, soot, and dry wood ashes, in equal parts, at the rate of a peck of the mixture per rod (30½ square yards). This will, perhaps, brown the lawn a little by killing the moss, but it will encourage the growth of the grasses and Clovers and prove bad for the weeds. After the first rain it may be well rolled, and as often afterwards as desirable to insure a firm bottom. Then you may follow this dressing with one of sulphate of ammonia during moist weather not later than early June, at the rate of three-quarters pound per square yard, mixing it with sand to insure its even distribution, or if the soil be light and the grass weak use nitrate of soda instead. But we prefer potash or ammonia salts for lawns, as nitrate of soda encourages grass at the expense of the Clover and a fine sward. If you write us fully before autumn, and state the nature of the soil, we shall be pleased to assist with further information.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. A. H.*).—1, *Aselepias curassavica*; 2, Appears to be a *Melastomaceae* plant, but the specimen sent was not sufficient for identification.

COVENT GARDEN MARKET.—MARCH 23RD.

Market quiet with supplies running short.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ -sieve	1	0	to	4	0	Grapes, per lb.	2	6	to 4 0
Apples, Canada and Nova Scotia, per barrel	12	0	25	0	Lemons, case	15	0	2) 0	
Cobs, Kent, per 100 lbs. ..	0	0	45	0	Oranges, per 100	4	0	9 0	
					St. Michael Pines, each ..	3	0	6 0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0		0	0	Onions, bunch	0	3		0	5
Carrots, bunch	0	4		0	0	Parsley, dozen bunches ..	2	0		3	0
Cauliflowers, dozen	2	0		3	0	Parsnips, dozen	1	0		0	0
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0		3	0
Coleworts, dozen bunches	2	0		4	0	Salsify, bundle	1	0		1	6
Cucumbers, dozen	4	0		6	0	Scorzonera, bundle	1	6		0	0
Endive, dozen	1	3		1	6	Seakale, per basket	1	6		1	9
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3		0	0
Leeks, bunch	0	2		0	0	Spinach, bushel	2	0		0	0
Lettuce, score	0	9		1	0	Tomatoes, per lb.	0	4		0	6
Mushrooms, punnet ..	1	6		2	0	Turnips, bunch	0	0		0	4

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each..	2	0	to	10	0
Azalea, per plant	2	0		3	6	Genista, per dozen	8	0		12	0
Cineraria, per dozen ..	6	0		9	0	Hyacinths, per dozen	6	0		9	0
Cyclamen, per dozen	9	0		18	0	Lily of the Valley, per pot	1	3		2	0
Daffodils, per dozen	9	0		12	0	Lycopodiums, per dozen ..	3	0		4	0
Dracæna terminalis, dozen	24	0		42	0	Marguerite Daisy, dozen ..	6	0		12	0
„ viridis, dozen	12	0		24	0	Myrtles, dozen	6	0		9	0
Erica various, per dozen ..	9	0		12	0	Palms, in var., each	1	0		21	0
„ „ „ „ „ „ „ „ „ „	12	0		18	0	„ (specimens)	10	6		63	0
Euonymus, var., dozen ..	6	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
Evergreens, in var., dozen	6	0		24	0	Solanum, per dozen	9	0		12	0
Ferns, in variety, dozen ..	4	0		18	0	Tulips, dozen pots	6	0		8	0
Ficus elastica, each	1	6		7	0						

Bedding plants in variety, in boxes, from 1s. to 4s.

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms rather scarce in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	5	0	Marguerites, 12 bunches ..	3	0	to	4	0
Azalea, dozen sprays	0	6	0	9	Mignonette, 12 bunches ..	1	6	3	0		
Bouvardias, bunch	0	6	1	0	Mimosa or Acacia (French)						
Carnations, 12 blooms ..	2	0	3	0	per bunch	1	6	2	0		
Carnations, Malmaison, 12					Narciss (French) dozen						
bunches	6	0	9	0	bunches	2	0	4	0		
Cineraria, dozen bunches..	6	0	9	0	Narciss (various), Scilly						
Cyclamen, dozen blooms ..	0	3	0	6	dozen bunches.. .. .	2	0	4	0		
Daffodils (double), dozen					Pelargoniums, 12 bunches	9	0	12	0		
bunches	2	6	4	0	„ „ „ „ „ „ „ „ „	6	0	9	0		
Daffodils (single), doz. bnch.	3	0	8	0	Primula (double) 12 sprays	0	6	0	9		
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0		
Euphorbia jacquiniæflora					„ Red, per doz. blooms..	4	0	9	0		
dozen sprays	2	0	3	0	„ Tea, white, dozen ..	1	0	3	0		
Epiphyllum, dozen blooms	0	6	0	9	„ Yellow, dozen	2	6	6	0		
Freesia, dozen bunches ..	2	0	4	0	Snowdrops, dozen bunches	1	6	3	0		
Gardenias, per dozen ..	4	0	8	0	Tuberoses, 12 blooms..	1	0	2	0		
Hyacinths, dozen spikes ..	4	0	6	0	Tulips, dozen blooms..	0	6	1	0		
Lilium longiflorum 12					White Lilac (French) per						
bunches	5	0	8	0	bunch	4	0	6	0		
Lilium (various) dozen					Violet Parme, French bels.	2	0	3	0		
bunches	2	0	4	0	„ „ „ „ „ „ „ „ „	1	0	2	0		
Lily of the Valley, dozen					„ „ „ „ „ „ „ „ „	1	6	2	0		
sprays	0	6	0	10	„ English, doz. bunch.	1	0	1	6		
Maidenhair Fern, dozen					Wallflowers (foreign), dozen						
bunches	6	0	12	0	bunches	2	0	3	0		



GREEN CROPS.

THAT it was a mistake to lay down entire farms to permanent pasture has long been in evidence, especially during the prevalence of weather extremes, such as the drought of the autumn and winter of 1890-91, and the prolonged severity of the winter, which, according to the calendar, ends in the third week of the present month. Hayricks waste fast under the incessant demands made upon them now; graziers of grass farms are almost at their wits' end to keep stock alive, to say nothing of the maintenance of condition. The outlook for them is indeed gloomy; a late spring is now a certainty. Upland pastures are bare, it is only on water meadows or sewage farms that there is herbage in anything like sufficient quantities for grazing. If good hay had been made last season cattle might have made out on a moderate quantity; as it is, they are on short commons of washed-out hay, and are so enfeebled that many have died outright from debility and exhaustion. It is indeed matter for regret that ensilage makes way so slowly among us. It is all very well to term it "nasty," and to give preference to "a good bit of hay," but last year it could not be had, a lot of inferior hay being made at four or five times the cost of good silage.

Sheep on grass farms are also low in condition; the cold wet summer and autumn told upon them, the poor herbage resultant from such weather was not sufficiently nourishing, ewes especially became so enfeebled that lambs come weak, and losses among them are heavy. All this points to a fault on grass farms, which urgently demands recognition in that best of all forms, an applied remedy. The fault is a want of arable land for the growth of sufficient corn and straw for feeding purposes and litter, as well as of auxiliary green crops. Rye for spring, Tares for spring and summer, Lucern from spring till autumn, cattle Cabbage for the last three months of the year, followed by Thousand-headed Kale from Christmas till the present time, or even later. Dairy farmers having an abundant supply of Early Drumhead Cabbage at Michaelmas for the cows are rewarded by a milk yield that is wonderfully well sustained in comparison with the failing yield then had from cows on pasture only. This crop is sown in drills in April or early in May, so that it receives no check from transplantation. If transplanting must be done, then sow in a seed bed at once, sow also a bed of Late Drumhead at the same time for the successional crops. Early sowing of the late large-growing

Drumheads is necessary if we would have full development. The seed of both early and late sorts should be sown thinly ; when the plants are large enough to be removed any that are crowded should be thinned, so as to have them stout and sturdy when transplanted. The advantage of a seed bed is in being able to wait till such crops as Rye, Trifolium, and winter Tares have been folded and the land enriched, for all the Cabbage tribe requires rich soil. If these crops are mown for yard and stall feeding, then apply for the Cabbage 1½ cwt. nitrate of soda, 2 cwt. muriate of potash, 2 cwt. superphosphate of lime, and 3 cwt. of salt per acre ; no nitrate of soda is required when the Cabbages follow Tares. Plant the early sorts 20 inches apart each way, and the late sorts 30 inches apart, using 1 lb. of seed per acre of the latter, and 1½ lb. of the former.

For a plentiful supply of wholesome nourishing green food in the hottest and coldest months of the year there is nothing like Thousand-headed Kale. By successional sowings now, and onwards till early in August—the last sowing being for transplanting in spring—a supply of it can be had from midsummer till Lady Day. It is alike useful out on pastures parched by drought and heat in July, or as we have had it during the present month in folds for sheep while the land was covered by snow, and with a hard frost that has destroyed whole fields of winter Broccoli, but which did no harm to the Kale. It affords a crop of marvellous bulk per acre, is most wholesome, sheep very seldom having scour while folded upon it. Flockmasters and dairy farmers should always have a few acres of it for winter, as a supply of green food available at any time, of especial value during a hard winter or late spring, and therefore mainly to be held in reserve for precisely such cold weather as we have had this month. Only a small quantity is required for dairy cows of the home farm during winter, caution being required in the use of this or any other food at all likely to impart the slightest taint to the milk. The mere milk producer for sale need have no such scruples, his aim is quantity before all things, he can obtain it by the free use of Cabbage or Kale as pasture becomes bare in autumn.

Well would it be if more heed were given to the fact of the severe and unnatural strain to which dairy cows are subjected. In a state of nature they simply give milk while suckling the calf, but we induce them to continue in milk till within a month or two of calving again, so that milk secretion and the nourishment of the *fœtus in utero* goes on at the same time. It is obvious, therefore, that our best care is essential in the preparation of a full supply of green food as well as of a plentiful mixed dietary of wholesome dry food. Every winter do we see cows compelled to clear up fog, which is just so much dead and decaying herbage practically devoid of sustenance ; they do it because they are so hungry, the only additional “food” being a little hay scattered about the pasture once a day.

WORK ON THE HOME FARM.

Barley sowing generally is bound to be late, and malting samples of the highest quality are likely to be a rarity after next harvest. We see much of what is going on in our frequent long journeys, and see much that is wrong. There are loud complaints of ploughing arrears, as autumn tillage was not done last year owing to a late harvest. Certainly conditions were bad, but let individuals put it to themselves if they did their utmost to get through the ploughing last autumn. We much fear there will be many inferior crops this year owing to late ploughing, late sowing, and poverty of soil. Fortunate is the man now who has his supply of chemical manure at hand in readiness for use, and his land in wintered ridges. Then after a day or two of fine weather he has simply to break down the ridges to drill in seed, corn and manure together, to secure speedy germination and robust growth. Spring Beans and Peas, if not sown in February, will now be too late for a full crop. Westrongly advise the substitution of Oats for both leguminous crops now. Sow a fine sample of Black Tartarian Oats, short, thick, heavy seed ; use the full quantity of nitrogenous and mineral manure with it, and there should be a profitable crop. Get this work and the sowing of seeds out of hand as quickly as possible ; see also to sowing successional crops of spring Tares, drill Clover seed and Sainfoin for layers, also Lucern for a more permanent crop, as well as the other green crops mentioned in our article this week. Look forward to and prepare for emergencies arising from extremes of weather. Make it a rule to have a surplus

rather than a deficiency of food for live stock the year round. Store stock is now very cheap, food is scarce, and the approach of Lady Day with its liabilities is likely to cause many forced sales of store beasts at a loss. Well, the lesson will not be altogether unprofitable if it leads to a sensible restriction of the head of stock well within the farmer's means.

As we write it is pouring with rain after a severe night of frost and snow. March lambs exposed to such weather are fast dying, but then it is trying weather for all animals left out in the open, yet on many a farm we find no provision of shelter whatever for ewes and lambs. Chance and luck still enter largely into the farmer's creed ; very dear does he pay for his blind faith. To home farmers we say, Continue to bring ewes and lambs into snug folds at night when the weather is unsettled. Let all weak, delicate animals have roofed cribs, keep all from exposure to cold cutting winds, and let the ewes have an extra ration of Oats daily. Let all forward lambs have as much lamb food as they can consume.

OUR LETTER BOX.

Wintering Cows (W. R. R.).—Your experience of cow yards and pasture is peculiar. A well-managed, well-drained yard with the surface sloping to the drains is always sufficiently dry and firm for the cows to walk or stand upon in comfort. Pray note that we say well-managed advisedly, for we never allow decaying litter to accumulate in such quantities that moisture oozes out of it and forms pools around the cows' hoofs at every step. In wet weather the cows are not out in the yard, but are either in a comfortable open lodge, at least 18 feet wide, where they lie or stand about contentedly on clean dry litter, or if at all delicate are kept in close lodges or cow houses. We could show you heavy land pasture which is almost under water in a wet autumn or winter. Although you may not have cows calving in spring, farmers invariably do, and we are bound to remember this. At midwinter their cows are generally in an advanced state of pregnancy, and we have no doubt that very many cases of abortion are caused by the two evils, exposure and underfeeding. Whether to turn out in winter or not is not a mere matter of opinion with us as you imply. We are constantly coming upon cows out in all weather in all parts of the country, and, as a safe general rule, deduced both from observation and practice, we say keep in the cows. We also repeat that turning out cows from the fanciful idea that they require exercise does unsettle them, and does lead to a good deal of bullying and fighting. We never yet saw a large herd of cows where this was not the case, and in mixed herds have had delicate Jerseys much injured. Have you never heard of the parson's glebe land ? Surely you must know that there is no insuperable difficulty in the way of his having some land under the plough, even if he has to hire for tillage, and he can have his spring supply of green food just as well as anyone else. If you re-read our first reply you will see that one reason for not turning out in spring till there is a “full bite” is because the cows cannot get enough of the scanty herbage to satisfy them. In the yard there is the rack full of green food in readiness for them to go to after the milking. They soon have enough, the natural craving is satisfied for the moment, they are contented, and no animal shows its enjoyment of peace and plenty more thoroughly than a cow as it quietly ruminates in snug quarters on a sound *dry* floor. No doubt your cows are well cared for, the interest you take in them is sufficient warranty for that. But this is not the case generally, and our aim and effort is to incite careless, easy-going dairymen to strive for that improvement which is so entirely possible, so much for their benefit and for that of the animals under their care.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N. ; Long. 0° 8' 0" W. ; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1892. March.	Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	13	29.379	31.1	29.6	W.	34.3	42.4	24.1	74.8	23.2	
Monday ..	14	29.497	32.5	31.2	N.	34.1	41.3	23.8	72.9	20.3	
Tuesday ..	15	29.661	40.0	37.2	S.E.	34.0	44.8	30.9	65.4	27.6	
Wednesday	16	29.911	41.0	37.2	N.W.	34.0	52.8	35.9	88.4	34.7	
Thursday ..	17	30.168	50.0	46.8	S.	36.9	57.4	41.4	88.0	38.0	
Friday ..	18	30.362	48.4	46.4	S.E.	38.9	59.8	39.9	95.2	34.3	
Saturday ..	19	30.269	44.9	42.1	E.	39.8	54.7	36.2	94.7	29.2	
		29.892	41.1	38.6		36.0	50.5	33.2	82.8	29.6	
										0.198	

REMARKS.

13th.—Bright sunshine throughout.
14th.—Almost unbroken sunshine throughout.
15th.—Sunny early ; overcast and showery from 10 A.M. to 1.30 P.M., then very wet till 5 P.M. ; overcast evening.
16th.—Rainy till 5 A.M. ; mild sunny day.
17th.—Cloudy early ; mild and sunny after 10 A.M.
18th.—Unbroken sunshine throughout.
19th.—Continuous sunshine throughout.
Very cold at the beginning of the week, warmer later, and generally sunny.—
G. J. SYMONS.



NO doubt the connection of two subjects so distinct in character as heating glass structures by the agency of pipes near the roof instead of near the floor of a house, and growing plants in glazed pots may appear incongruous, yet as satisfactory examples were seen together they may be described together not inappropriately. Neither of these methods is by any means new, and both have been referred to in the *Journal of Horticulture* from time to time during the past ten years. Glazed pots have several advocates, roof-heating comparatively few, because perhaps few have tried it, and certainly not many persons have adopted both the system of heating plant houses from pipes under the roof and growing plants in the structures in glazed pots systematically. Mr. Cuthbert Johnson has done so to his complete satisfaction. For years his fine tropical winter garden at Daventry was heated by pipes at the top next the glass; and Orchids suspended from the rafters, and Ferns with ornamental foliated plants below, proved by their luxuriance how well their wants were met. The owner was a little proud of this house as he had reason to be, for it was a very delightful adjunct to his home. One among many notable plants was a *Colocasia esculenta* with leaves 4 feet 6 inches long and 3 feet 6 inches broad, this being cited as typical of the health of the collection. But something besides the roof-heating contributed to the results achieved. Mr. Johnson was then a medico with an extensive practice, therefore a scientific man. He studied plants and their wants, and as some of his Orchids and other kinds did not appear quite so well as he wished he prepared a mixture for them, and with this mixture, roof-heating, and glazed pots, he could do all he wished in his garden under glass.

Mr. Cuthbert Johnson now resides at Croydon in the first house that was built, by his uncle, on a portion of Hayling Park of Elizabethan fame. Some of the royal Oaks remain in his grounds, and one, a wonderful specimen, said to be a thousand years old, appears yet in youthful vigour, a consequence of the deep rich soil, but another has been killed by the goat moth, and there are thousands of tunnels in the ancient trunk. In the late Mr. Cuthbert Johnson's "History of Croydon" (manuscript, and unpublished), it is stated that the Oak tree mentioned as 1000 years old was measured by Dr. Lindley in 1856, and then estimated by him to be of the age named. The tree has been recently measured by a surveyor. The circumference of the trunk at 3 feet from the ground is 29½ feet, height 61 feet. One arm extends 49 feet, others 45 and 46 feet from the centre of the butt. It is a grand old monarch of the forest primeval, yet still as in the vigour of youth. As evidence of the depth of the soil a Parsnip dug up with its tap root unbroken to a length of 5 feet 5 inches is hanging in an Apple tree. Thus Waldronhyrst is a fertile spot, and at the same time picturesque and historical.

In an excellent range of glass, erected by Messrs. Foster and Pearson, are plants of many kinds in glazed pots of nearly all sizes. They are distinctly preferred to the ordinary pots, which are also used, because the glazed ones are always clean, the plants in them do not require water nearly so frequently as in the others, and consequently the soil's fertility is better conserved—not washed away. The owner likes these pots, and clearly the plants like them too. The objection to them because not porous is devoid of validity. Air in sufficient quantity for the roots of plants always

follows water as it sinks through the soil, and there is a great deal too much air—dry air next the sides of many porous pots, the result of evaporation. Mr. David Thomson's success at Drumlanrig, the late Mr. Woodhead's wonderful collection of Auriculas at Halifax, and Mr. Johnson's experience, all demonstrate the innate suitability of these pots for plant growth.

The houses at Waldronhyrst—Mr. Johnson's residence—were well heated in the ordinary way, but he had pipes placed under the roof also. These he regards as the more effective. The cold air next the roof is tempered; there is no condensation on the glass; the air below is not parched, but, on the contrary, refreshing dew is often deposited on the plants, and the arrangement gives the greatest satisfaction. Mr. Bull once erected a large Orchid house at Chelsea, but the plants through some mysterious cause did not thrive; a pipe was arranged under the roof at the base of the rafters, and from that time forward the Orchids flourished. A range of vineries could be named in which splendid Grapes are produced, except towards the top of the structure, which has a small hip roof facing the north. The Vines are chilled at the top, and a 2-inch pipe there would almost certainly improve their condition materially. Mr. Cannell has long relied on roof heating, and thoroughly believes in its usefulness, and it has no doubt something to do with his marvellous winter displays of Zonal Pelargoniums. As an adjunct, at least, to orthodox methods, hot-water pipes under the roofs of many houses and pits would probably be highly advantageous, and it is certain Mr. Cuthbert Johnson would not sleep comfortably without them.

Passing now to the mixture with which he doctors his plants here is the formula—equal parts in weight of phosphate of ammonia, sulphate of ammonia, nitrate of potash, and sulphate of magnesia. It is sprinkled on the soil of plants in pots occasionally, on beds and borders, and is used as a refresher for lawns; also the powder at the rate of 2 ozs. dissolved in 3 gallons of water makes excellent liquid manure. Mr. Johnson has also found that a solution of nitric acid, 1 oz. dissolved in a gallon of water and used for syringing purposes, invigorates his plants. It also cleanses the leaves of any calcareous matter that may have been deposited by syringing with hard water.

Many a good hint may be gleaned from amateur gardeners whose actions are guided by the light of science. Mr. Johnson was himself guided by a shining light in the horticultural world—his talented father and founder of the "Cottage Gardener," which developed into the *Journal of Horticulture*. Mr. Steadman, the careful and industrious gardener at Waldronhyrst, likes the method of heating and the pots described, and there is not a doubt they, as well as the plant medicine, answer their purpose well.

SLUGS AND LIME WATER.

SEVERAL of your correspondents are interested in these enemies of the gardener. Some years ago I took charge of a garden that was overrun with slugs and weeds, and the soil was in a poverty-stricken state. The first spring and early summer was showery, and it was almost impossible to raise seedlings of the Brassica family or Lettuce without sowing two or three times for one crop. Dwarf and Runner Beans had to be sown three times for only a part of a crop. Even the soft stems of Potatoes and the young leaves of the Globe Artichoke were welcome as food by the slugs.

I tried most of the so-called remedies, but found them almost useless. Dusting the plants with soot and lime did almost as much harm as good, as covering the foliage thickly hindered the plants from making headway. I tried brewers' grains, bran, old boards, slates and tiles, then ducks. These became very fond of the tips of the shoots of growing Peas and Asparagus, and also spoiled many Lettuces. I found if ducks can be driven on the infested

quarters about 5 o'clock in the evening, and taken away the next morning from 6 to 9 o'clock, according to the weather, they are useful. It is almost impossible for ducks to find many slugs in the daytime except in showery weather. Ducks and baits are useful when attended to where there are not many slugs to contend with, but, as in my case, where they seemed to be more like a plague than anything else, they are useless; the best plan is to get rid of the pest wholesale if possible.

My remedy was lime water, which played havoc with them, and after they had had a dose overnight the smell would be anything but pleasant the next day when the sun was hot. I have watched slugs slip three coats when dry lime has been dusted on them, but not so with lime water, as that was too much for them. The plan I adopted was this. There were two water-barrows or tanks on wheels, they each held about 35 gallons; before the men left off work at night one would put about a peck and a half of freshly burnt lime into each tank, fill up with water, then wheel them to the quarter of the garden to be operated on at night, from 9 o'clock to half-past. With a lantern in one hand and a large watering can with a large rose on in the other the attack commenced. We began on one side of a square or border as the case required, and covered the ground with the spray from the rose of the can. As a barrel became nearly empty about half a peck more lime was placed in, then more water. The water in the tank filled first would become almost clear by the time the second tank was ready. Much of the ground was watered twice on different nights at about weekly intervals. Growing crops and seed beds were alike watered. Three or four nights a week for about six weeks were devoted to slug annihilation.

Some men might object to spending their evenings in the manner described, but when a gardener is earnest in his work he does not think much about inconvenience to himself; the results that he expects to achieve draw him on, and the reward in my case was practically a slugless garden. Night attacks were made, because about ten o'clock the slugs were very busy feeding. Lime water does not injure the foliage of plants or crops.—F. C.

[The use of clear lime water at night for destroying slugs has often been advised in our answers to correspondents. It is in our experience the cleanest, safest, and best method for accomplishing the object in view. A determined worker like "F. C." can soon vanquish a horde of slugs.]

FLOWERS FOR CUTTING.

GLADIOLUS OF THE GANDAVENSIS SECTION.

(Continued from page 214.)

THE question as to which are the better to plant, small or large corms, is worthy of consideration. If thoroughly well ripened I do not think there is much difference, but if a corm is young it is to be in general preferred, as I think the finest spikes are produced from these. The exasperating constitutional weakness so apparent in many varieties arises no doubt from one or other of the species which have been employed in the production of the Gladiolus as we find it to-day. *G. gandavensis* itself was placed in commerce about fifty years ago by Van Houtte of Ghent, a Belgian private gardener having been the raiser. It was a cross between *G. psittacinus* and *G. cardinalis*. But there is very little apparent kinship between *gandavensis* and the varieties cultivated at the present time. Indeed, soon after its production it would appear that *G. floribundus*, *G. ramosus*, and perhaps others were employed for cross-breeding. It is therefore not at all wonderful that there are several distinct-looking types among the best varieties.

In the selection of varieties which follow, useful colouring, vigour of constitution, and comparative cheapness is considered. Of white flowers, Shakespeare, a remarkably healthy old variety, is good if well grown and useful, as a hundred plants will keep up a natural succession for three months. Amalthée, nearly white, is early and fine. Among shades of red, Flamboyant is very bright and good; Le Phare, an old, very cheap, and good sort; Meyerbeer, another old variety, very good; Le Vésuve, very fine, plant vigorous; Horace Vernet, a telling bright flower. Of the orange and salmon tints, Figaro is cheap, and produces a fine spike of most effective flowers. Celimène is an improvement on this. Bicolore is much dwarfed, a good sort. Panama is a very fine variety, with large flowers. Of rosy shades, Amitié, a light fleshy tint, is unsurpassed among late Gladiolus. Dalila is clear rose, and extra fine. Opale is much earlier than Amitié, with a shorter spike of fine flowers. Crépuscule has very large flowers of a lilacy shade. Phoenix is an old variety, extra bright rose, telling and good; Sultane, large and fine; Teresita is a vigorous grower, and much

better than Orphée, which it resembles. Addison is a free form of an amaranth shade of colour.

Almost the whole of the above are of value as exhibition sorts, in addition to being fine for the purpose in view. The following are a few slightly more expensive:—Baroness Burdett Coutts, a massive sort of much value; Dr. Bailly, one of the finest, glowing scarlet with white throat. Grand Rouge is somewhat later, and of a duller shade, but a magnificent variety. Its violet-marked throat detracts somewhat from its general effectiveness. Enchanteresse when in character is, in addition to having the largest flowers, of the loveliest suffused violet tint imaginable. I have grown many spikes of this, but have produced only one with the satiny suffusion which is so beautiful. Fra Diavolo is an extra large flower of a salmon shade; Mons. Brongniart, very beautiful, of the same shade; Pasteur, also salmon or deep orange, is a noble flower; Ondine, white with violet throat, is very beautiful, but somewhat tender in constitution.—B.

DISBUDDING VINES.

WITH the return of spring-like days vegetation in every department of the garden is making rapid progress, but the quickening influence of sunshine shows its good effect on Vines just bursting into leaf—more speedily, perhaps, than upon the majority of plants. Those cultivators who have charge of numerous fruit houses have a busy time before them, and will need all their energy to keep under due control the many pressing details of culture, upon which success or failure mainly depend.

The disbudding of Vines is an operation which should be taken in hand as soon as the young shoots are half an inch in length, so that the energies of the Vines may be concentrated in those which are retained throughout the season. When the disbudding is begun at this early stage the work resolves itself into a simple matter of rubbing out the weak shoots which spring from the base of the spurs. Where the Vines have been pruned back to one eye the disbudding is practically completed after this operation, because the selection was really made at pruning time, and there is no choice now but to take the strong shoot produced. This practice undoubtedly has the advantage of concentrating the energies of the Vine from the earliest stages of growth into the shoots retained. The produce from these shoots, though satisfactory enough for general purposes, does not represent the highest type of Grapes the cultivator strives to produce. The basal buds from which these shoots spring are generally thoroughly ripened, and are therefore capable of finishing well the bunches they produce, but they will bear no comparison with the bunches sometimes grown on longer spurs, when, as in many cases, they can be well coloured. In those instances, therefore, where at pruning time several eyes were left to a spur, with a view to securing extra large bunches, the advantage of such practice will now be apparent, as a selection of the best bunches can be readily made as soon as the shoots have grown sufficiently to distinguish them.

In some cases it may be noticed that the terminal bud shows a bunch too long in the shoulder to be desirable. I would then give the preference to the bunch produced from the basal bud, although it may be considerably smaller. In many instances, however, the terminal buds will show bunches faultless in shape, short in the shoulder, and extra large in size. Those cultivators who have such promising materials to select from will, I think, not be long in deciding to allow them to remain, for they will find plenty of smaller bunches on other parts of the Vine. Where very long spurs have been left care should be taken to retain a young shoot at the base, so that the spurs may at some future time be cut back to that point. This shoot should be stopped at the second or third leaf, according to the room there is for its development. Very strong wood will sometimes send out shoots which require most careful handling to prevent their being broken during the process of tying down. Where such shoots occur it is prudent to leave a supernumerary one to be stopped at one joint, and later on entirely removed, if the tying down is completed without accident. When disbudding young Vines there is a general tendency to leave the young growths which will form the future spurs too closely together. The exact position of each spur should therefore be marked out before any shoots are removed, because if once they are started too closely it is difficult to regulate them properly afterwards except by taking out every other spur, and this would, in many cases, leave them too far apart.

Varieties of Grapes differ considerably in the amount of space necessary between the spurs. From 14 to 18 inches is a good distance for Black Hamburg, from 18 to 20 inches for Alicante, Gros Colman, Lady Downe's, Foster's Seedling, Mrs. Pince, Buckland Sweetwater, Alnwick Seedling, Mrs. Pearson, and Golden Queen; while Muscat of Alexandria, Gros Guillaume, and

Trebbiano require from 20 to 24 inches. The plan I have found to answer best in setting out the position of the spurs at disbudding time is to go over one side of a Vine first and mark with a pencil or piece of chalk the rods from which the growths spring, at equal distances along the entire length. The shoots nearest these points can then be selected, and the others removed. Next commence on the opposite side of the Vine, and choose shoots as nearly as possible midway between those already dealt with on the same Vine. All will then be conveniently placed for covering the trellis evenly, without crowding in any part. The tying down of Vine laterals will be referred on a future occasion.—H. DUNKIN.

INSECTS OF THE FLOWER GARDEN.

(Continued from page 566, last vol.)

EVERYBODY knows the familiar bee of our hives, and its continental relatives, which have been established with us for some years past, are also generally recognised. The big, noisy, humble or bumble bee, is common amongst our flower beds, and its nest may occasionally be found on a lawn. I noticed an instance recently, where one was opened by accident, much to the anger of the bees, which are quite able to sting, though in popular repute they are accounted harmless. But these are only a small part of the bees that visit our flower gardens; many of them, indeed, are supposed to be small wasps by hasty observers, and others of them might pass for flies. Several species are small and glossy, not a few are black and red, or black and yellow, others of them have a metallic appearance; but, big or little, all these wild bees, social or solitary, are distinguished by one thing, the peculiar form of the hind leg. The first joint of what we call the tarsus, is a flattish oblong or triangular plate; this in the wasp tribe is cylindrical. We see at once the use of the special structure when we consider the habits of bees, the joint in some bees being densely clothed with hairs for the conveyance of pollen, while in the hive and humble bees this joint is so hollowed as to form a kind of basket. But it is a singular fact that some bees well furnished with hairy legs do not collect pollen; also there are instances of bees having no hairs on the legs, and, instead of them, brushes under the abdomen or thorax. The drone of the hive bee has a large tarsal joint which appears to be of no use to him, yet there are other bees, collectors of provisions, which are ill-provided with the means of carrying them. Such are the singularities of Nature! One thing more we notice about the legs of bees; most of them are furnished with a couple of comb-like spurs upon the front pair. These are frequently used by the insects in dressing the antennæ, which they are very particular to clear from the dust and dirt that would interfere with their action.

Insects of various orders are useful in the garden as agents for conveying pollen—not only from the stamens to the pistil of any flower they visit, but in bearing this to more distant flowers. No insects, however, do more service than the bees. Then, too, where the stamens and pistils are in separate flowers fertilisation would be difficult unless some outside agency bore the pollen from plant to plant. Certainly there are instances where this is wafted by the wind; it may sometimes be distributed by birds; but insects, bees especially, have most to do with the fertilisation of plants. No doubt they might sometimes be charged with making a good variety degenerate or fail by carrying pollen to it from another plant which should not cross it, but I think such cases are infrequent. Here, perhaps, a few words should be interposed about the connection between insects and flowers, without taking up the vexed question whether the flowers exist for the sake of the insects or the insects exist for the sake of the flowers. What induces the races of the insect world to visit flowers? In some cases they go to the flowers in order to prey upon other insects that are either residents upon the flowers or casual visitors; but these are instances where the flowers play a secondary part. But insects seek the flowers themselves for their honey and their pollen. A few species, however, carry off petals for purposes we need not now describe. We cannot err in considering that certain peculiarities of flowers help to draw insects towards them—the scent, the bright and mingled colours, also, as Sir John Lubbock points out, the lines or spots upon the corolla; possibly, too, the shape and angles. The very construction of many garden flowers seems to tell us that they are not meant to fertilise themselves, but that they must depend on other agencies, insects especially. A large quantity of pollen wafted upon the air by breezes is obviously lost—scattered hither and thither, it never reaches any flower.

Returning to our immediate subject, the bee tribe, I notice first the family of the Andrenidæ, and the species being numerous I must, to save space, take them in families. These have a short,

flat tongue, and are solitary in habit, though it may sometimes happen that a number of their nests may occur upon the same bank or wall. Should it be so, the insects take no notice of each other, and as every pair constructs its own nest there are no public works, hence no united labour. Also there are the two perfect sexes, male and female, but no workers. Some species have their nests in sandbanks or walls, as already remarked, the burrows they make being lined by a curious substance, which some think is secreted by the bee, and others suppose to be a preparation from some part of plants by the jaws. When completed, the bees of this group—of course, the females are chiefly, if not entirely, employed—store the burrow or nest with honey and pollen; eggs are then deposited, and the entrance sealed. Upon the young grubs awaking to life they find themselves in a comfortable apartment, and with plenty of food ready. Of course, it is not surprising that the Andrenidæ are frequent visitors to our beds and borders, also to houses occasionally. They confer benefits, and carry off what is required for their progeny. Some of them have a different habit; they cut tunnels in branches of shrubs, which are similarly stored. Careful as these bees are, they cannot secure their young from ichneumon enemies, by which some are always destroyed.—ENTOMOLOGIST.

DOUBLE PRIMULAS.

I WAS pleased to notice in your two recent issues the notes recommending the more extended cultivation of this most useful and beautiful class of plants. It has often struck me as very strange that double Primulas are so neglected, and especially in many large and well managed gardens where white flowers especially are always welcome. This applies particularly to the dull winter months, when, as in the past season, the demands on the gardener's energies have been very heavy. One of the most useful flowers I find for wreaths and other purposes is the old double white Primula. It is not too heavy, and yet full enough to satisfy the most exacting cultivator. We have many other beautiful varieties, two of the best no doubt being Marchioness of Exeter, pure white, fimbriated, and of fine form, and Earl of Beaconsfield, similar to the preceding, but bright rosy carmine. These two are very effective when arranged in suitable baskets or vases with Maidenhair Fern.

Our method of increasing these plants is this: In the spring, say about April, we clean the stems of any useless leaves down to the soil, then pack round them fresh sphagnum moss cut rather fine; this is kept constantly moist, and the plants placed in position where they will not receive too much sun. It is surprising how well they root into this medium in the course of a few weeks without any other preparation whatever. This plan surpasses all others that I have tried. The plants are then divided with a sharp knife, securing a stem or more, with quite a mat of roots; they are then placed in small pots in a light mixture, and kept moving until ready for a shift into 5½ or 6-inch pots in a compost of about equal parts of loam and leaf mould, with a liberal addition of silver sand, lime rubble or charcoal, broken rather fine. We grow the plants all along in an intermediate temperature and light position, yet guarding against strong sunlight. We usually gather flowers in November, and have a supply till the spring.

If the plants require a stimulant it is a good plan to mix some approved artificial manure with the same quantity of fine soil, allow it to remain a few days, and then apply as a top-dressing once or twice during the season; this helps them considerably when flowering freely. One most important item in the culture of these plants is thorough drainage, for without this failure will be sure to follow. I am aware that Marchioness of Exeter in many cases is inclined to be striped with pink, but we have never noticed this in our variety.—J. J. C.

ROCK GARDENS.

(Continued from page 212.)

OF the Aquilegias, to which so many fine plants have been of late years added in our gardens, both species and varieties in the taller growing sections, there is but one which I have tried in my rockery, and with that one I cannot say I have been successful—viz., *A. glandulosa*, a most charming dwarf growing species. It requires a rich soil and a somewhat damp and cool spot, but I have failed to keep it beyond a couple of years. I obtained some plants from Forres, Gregor's variety, but these, too, failed. I have been told that the best way to succeed with it is to sow the seed in a suitable position, and leave the plants. I have not tried this, so do not know whether it will answer. I may add that there are no plants so difficult to keep true as the Aquilegias. Repeatedly have I tried *A. cærulea*, but have miserably failed. By some

agency or other other pollen has got in, and the purity of the variety destroyed.

The Aubrietias are a most free flowering and attractive section of dwarf growing plants. The ordinary one *purpurea* is very pretty, but is surpassed in size and brightness of colour by one raised by Mr. Ingram of Belvoir. The only difficulty with the plants is to keep them within bounds, as they so rapidly spread. Another beautiful variety has been raised by Max Leichtlin of Baden. It is of a beautiful soft tint of rose, and it may probably be the commencement of a new break towards crimson. Blues are capable of great divergencies, and a crimson Aubrietia would indeed be a great gain. Leichtlin is equally vigorous and free flowering as its parent, and is a most decided acquisition.

The family of *Campanula* is a very large one, as is well known, comprising plants of all heights from the little dwarf *Allioni* to the stately *pyramidalis*. There are, however, but few of them fitted for the rockwork, but some of these are very pretty and useful. Thus, *C. carpatica* with its varieties is very useful, falling over stones and producing its flowers in great abundance. *C. isophylla* is another pretty and useful species. It is a limestone lover, and some calcareous substance should be put into the soil in which it is planted. *C. turbinata* also and its varieties have large blue bells, or white, as in *alba*. There are other kinds of dwarf growing ones, but I have found these sufficient for my purpose. *Coronilla iberica* is one of the very brightest of yellow alpine, being very free flowering and pure in colour. I hardly consider *Cheiranthus Marshalli*, although very pretty, as a fit subject for the rockery; though described as dwarf it grows to a height of a foot or more. The dwarf *Cytisus* is also another pretty yellow flower, but I do not think equal to the *Coronilla*.

There is no flower, I think, more grateful or pleasing in the early spring than some of the hardy *Cyclamens*, preceding by some time even the early *Snowdrop* and *Crocuses*, and yet I have not got it on this rockery. I had planted some roots of *Atkinsi*, *vernum*, and *Coum* on it, but I found that they were not happy; and having read somewhere that they did best on a sunny border under the shade of trees, and having just such a place along the drive to my house which answered this description, I planted them there and they have done remarkably well, have seeded all over the place where the roots are planted, and now there is quite a bed of them of all shades of the colours found in this class. There seems to me, perhaps from this facility of seeding, a good deal of confusion, as the plants vary much in both the colour of the blooms and the markings of the leaves, some being beautifully mottled, and some quite plain. I had one under the name of *Atkinsi* which had most lovely marbled foliage with white flowers. I tried to get it from various quarters, but never succeeded. The place where they were planted is about the hottest spot in my garden, and they are thoroughly baked in the summer, and this is what they seem to like. I do not care for the autumn flowering varieties of this genus, as they seem to me out of place.

Cypripedium spectabile, the Mocassin Flower, is happily a flower that submits to garden treatment, and is far more easy to cultivate than *Calceolus*, or most, indeed, of our native *Orchids*. It requires a moist situation, shaded and peaty soil. My clump of it has always done well, but not so well since the Jubilee year, the long-continued drought of that memorable year having, I believe, injured it, as well as many moisture-loving rock plants. *C. spectabile* is a very beautiful flower, its rosy pink labellum being very bright. I have not been so successful with another North American *Cypripedium*—*acaule*; but we can dispense with this when we have *spectabile*.—D., Deal.

(To be continued.)

THE ADVANCE IN AMARYLLISES.

"TIME's tyrannic sway" deals harshly with Amaryllises. With the exception of a few varieties, here to-day and gone to-morrow is the rule. With few other flowers has it become so much a matter of course to look for new forms every season that will eclipse all preceding ones. In the majority of cases we have recognised standard varieties, to the number of which additions are few and far between, but in the Amaryllis the season's quota is not one novelty alone, which, after rigid scrutiny, is admitted into the ranks of the elect. We have whole groups of new forms, before which the varieties of the past have to give way. Great as was the improvement that many of these manifested when they made their first bow to the public, and warm as was the appreciation bestowed on them, they are found to "lag superfluous on the stage" when the new forms appear.

All this speaks of the enormous scope for advance that there

has been in Amaryllises, and, indeed, still is. In the case of many flowers the excellence produced presses closely on the excellence producible, or in other words, the maximum development possible has been approached, and hence further progress is slow and halting. But in these flowers, as in tuberous *Begonias*, the road has not been traversed so far, and thus it is that new byways of form and colour are being opened up every year, the old falling into the background. The work of exploration is a fascinating story, but it cannot now be dwelt upon; moreover, its features are familiar to many. There have been the early experimental stages, the putting into effect of ideas that may have been clearly defined in their inception, or may have been more or less crude; and there have been the further stages with objects sharply marked out when the success of the preliminary efforts had given a clue to the possibilities which lay hidden in the future. Then there has come the refining process, the gradual evolution of finer features in form, size, and colour. This is the stage that we are in now. Our hybridisers are not, to quote Lord Rosebery's recently coined phrase, as "men who dream dreams." They have a great reality to work upon. They have secured the diamond, and like the skilled lapidary, seek to give it a setting and a polish worthy of its value and its beauty.

The part that Messrs. Veitch & Sons have played in the development of the Amaryllis is well known. For years past they have been persistently engaged in cross-fertilising and raising new varieties from seed, and the result has grown to be one of the great sights of the floral season. For several years past visitors have flocked to their nurseries at Chelsea in spring to admire the magnificent display of flowers, and, more particularly, to inspect the latest novelties. It would be idle to deny that it is in the latter feature that the chief interest is found. The public recognise that the watchword in Amaryllises is Advance, and they are animated by a laudable desire to inspect and show their appreciation of the latest development of the florists' art. So far no disappointment has ever awaited them. The evolution of beauty has gone steadily on, and this year will mark no exception. The seedlings are full of interest, and many are of marked excellence. The display is as extensive as of yore. A span-roofed house, 64 feet long and 18 feet wide, is packed with plants in robust health and vigour, and the forest of spikes, with buds, half opened flowers, and blooms displaying their rich colours in perfection, combine to present a dazzling picture worth journeying a long distance to see.

By no means have all the novelties yet reached the stage at which their merits can be accurately gauged, but several have attained to it, and have passed through the ordeal of critical examination to which all are subjected. Their names are given herewith:—

Thelipius.—A light variety of fine form. The flowers are nearly white, but have a few lines of red.

Melona.—A distinct and promising variety, with a vigorous scape carrying three blooms. The flowers are carmine with dark veins and broad well-defined central stripes.

Acme.—A splendid variety, and a decided improvement on one of last season's specialities, *Olivette*. It is a beautiful rounded bloom, perfect in form, and of a rich light crimson.

Eclipse.—A charming variety, which has recently been honoured by the Royal Horticultural and Royal Botanic Societies. It is white streaked with bright red.

The Princess.—Noteworthy for its enormous scape, which is nearly 3 feet high, and numerous flowers. The latter are white, lined with deep rose.

Simonie.—Rich deep crimson, with boldly defined central bars—or star—of green, and a free bloomer.

Topaz.—A fine-bold, handsome flower of the salmon hue that is so popular in many flowers. Lady visitors may be expected to find abundant admiration for it.

Terence.—A really splendid variety, the result of a cross with the crimson *Dr. Masters* and another. It is an improvement on the fine variety named in its larger size. It is a dwarf grower, a free bloomer, and the intensely rich crimson flowers are compact and well formed. This is one of the best of the collection.

Orion.—A very vigorous grower, recently certificated at Regent's Park. The scape and flowers are large, and the colour crimson—an effective form.

Cordelia.—Another vigorous grower and free bloomer, bearing grand flowers of a rich deep carmine with bold central star.

Zouave.—Large and of fine form, the rounded petals forming a very handsome flower; colour, crimson. It is dwarf, and a sturdy grower.

Argus.—A free bloomer, of robust habit; certificated at Regent's Park. Dwarf, with deep crimson self flowers.

Plutarch.—Very large deep scarlet self flowers, with long scape.

Polyxenes.—Dwarf but very vigorous, with two spikes, each carrying a pair of flowers. Blooms of enormous size and fine

form, having well rounded segments. Colour, scarlet with green eye.

Arturo.—A very pleasing light variety of medium height, and a free bloomer. Flowers white, streaked and suffused with crimson.

Leonidas.—Medium to dwarf, and of sturdy habit. Flowers deep scarlet, of enormous size, and remarkable for great breadth of segment.

Leonie.—Bold spike, carrying well-formed flowers, these being ivory-white, edged with light red. A very attractive variety.

Other novelties will be in bloom shortly after these lines are published, and a prompt visit will be well repaid. It is satisfactory to note that advance is being made in vigour, sturdiness, and free blooming, as well as in colour and form of flower. Of the older varieties a word of praise is merited by Olivette, deep crimson, free and good, though now excelled by Acme; Acquisition, rich reddish carmine, with broad star, dwarf and effective; Bauban, crimson self, very vigorous and free; The Premier, rich crimson, the best of last year's seedlings, of medium height, vigorous and free flowering; Sirocco, a large crimson self; Fabula, crimson, a free bloomer, having two spikes carrying eleven flowers; Albo-viridis, greenish white, edged, Picotee-like, with crimson, small, neat, and distinct; Finette, white, streaked with crimson, an excellent light variety of vigorous growth; Ixion, dwarf and very free, salmon-red and white; and Empress of India, a large round scarlet-crimson flower, with greenish-white centre, rich and bright in colour, a dwarf grower.

Noting the vigour of growth and robust health of the plants at Chelsea, no visitor can fail to recognise that the conditions of culture must be in every respect congenial, and those of an observant and inquiring turn of mind can glean some valuable hints from the courteous and able grower. The pots are plunged to the rim in a bed of spent tan that has been kept for twelve months, with hot-water pipes below. This is a condition that cannot be imitated by every cultivator, but it is not an indispensable one. The plants are tractable enough, and the essential points in successful practice are not difficult to provide. Probably the commonest cause of disappointment with Amaryllises is an over-abundant supply of water in autumn and winter. For six months the Chelsea plants do not receive a drop. Generally speaking, this period may be said to begin at the middle of August and end at the middle of February. The supply is diminished towards the close of July, and the bulbs thus encouraged to ripen, the leaves gradually maturing. On the ripening process depends satisfactory flowering. If water is given through the autumn and winter growth is unduly maintained, and the plants charged with crude sappy matter, for the elaboration of which no time is allowed. A little reflection will enable the importance of this to be fully grasped.

Another great mistake in Amaryllis culture is to place the pots aside in an out of the way place when the flowering is over. That is the time when growth should be the most actively encouraged. From the present period water should be copiously supplied. It is difficult to give too much when the pots are packed with white fleshy roots, often peering through the surface, like those of Cucumbers, asking for more, and this liberal watering should be continued until the close of July approaches and the first steps of the drying-off process commence. Over-potting must be guarded against. It is an encouragement to growth rather than floriferousness. The largest bulbs at Chelsea are in 7-inch pots, and the majority in 5 inch. They are firmly potted in loam with a fifth of well-decayed cow manure and sand, and the roots ramify through the compost from top to bottom.

Repotting is practised in January, and every bulb is so treated, but where no convenience for plunging exists it might be well to defer it until the flowering is over, assisting the plants with weak liquid manure while in bloom. No check need be feared if this plan is followed. It was adopted with the plants which made so great an impression at Ghent a year or two ago, and the results were eminently satisfactory. Growers may have noted what appears to be a softening of the bulbs while in bloom. It is caused by the escape of the spike, and the object should be to grow the plants afterwards so that the bulbs fill out, harden, and subsequently mature. This point secured, the flowering period may be awaited without anxiety. Shrivelling at the roots need not be feared as a result of the long spell of dryness. If kept dry for six months they will remain plump and succulent. Fresh growth will push at the tips, and what may be termed lateral feeders spring from the side of the old roots in addition to fresh roots from the base of the bulb.

Of the accuracy of these remarks anyone may satisfy himself by personal observation, and by carrying out the hints they embody the noblest of spring flowers may be grown with success in thousands of gardens where it now has no place.—W. P. W.



THE CATTLEYA HOUSE.

MORE moisture must be maintained in the structure in which these plants are grown to induce the plants to throw out fresh roots into the material in which they have been potted or top-dressed. Some care is needed not to give the plants too much water at their roots. If an intermediate state of moisture can be maintained about them by dewing them with the syringe all the better. Syringing may also be practised, but on fine bright days only. When this is done air may be admitted for a short time to evaporate any water that may settle into the young growths. They are liable to decay if water remains about them for days in succession. Syringing is beneficial, and assists in keeping the plants clean, but it must not be done too heavily, or it will prove as detrimental as excessive watering. If the water about the plants can be evaporated once in every twenty-four hours no harm results.

If scale exists upon Cattleyas they may be thoroughly cleaned by sponging them with soap and water. Be careful not to scratch the leaves in removing the scale. If not thoroughly cleaned and examined frequently scale will increase rapidly with increased heat, and soon establish themselves on the young growths that issue from the base. Once scale is established upon them they are difficult to eradicate.

Cockroaches are certain to devour any young roots as they appear, unless they are well kept under. If houses have been well cleaned, and these pests thoroughly looked for at night, only a few should remain. These must be sought for every night and destroyed; if left until they breed they will soon become numerous, and give endless trouble and do a large amount of damage. Phosphorus paste put down at night on pieces of brown paper is a capital method of destroying them. With a light at night they are very difficult to catch. A pair of Grape scissors is useful for cutting them in two.

ODONTOGLOSSUM HOUSE.

Secure the blinds on this house without delay, for the sun has now gained considerable power, and the blinds should be drawn down for a few hours during the brightest part of the day. More moisture may be maintained, and the plants given more liberal supplies of water. Admit air daily to evaporate any moisture that may rest in the young growths. Watch for slugs, and destroy them, or they will devour the flower spikes as they appear. If these plants were repotted in early autumn they will only need the addition of a little living sphagnum on the surface.—ORCHID GROWER.

PECULIAR ORCHIDS.

THE genus *Sarcopodium* comprises a score or so of species, few of which are seen in cultivation, but several have been exhibited in

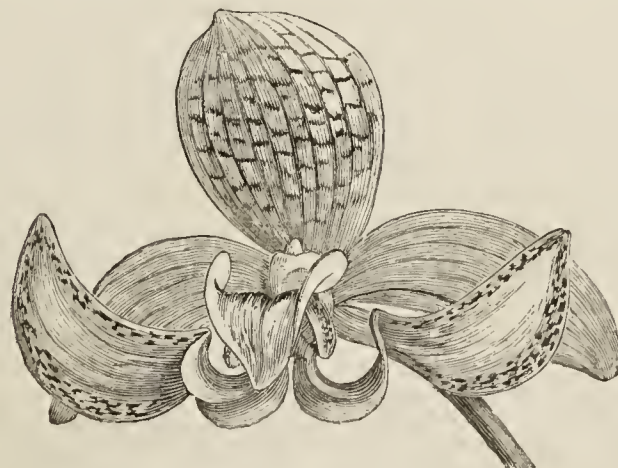


FIG. 38.—SARCOPODIUM DEARI.

recent years, and these have drawn attention to a peculiar group of Orchids that possess much interest owing to their singular floral forms and strange colouring. They are botanically related both to Dendrobiums and Bulbophyllums, but do not present a strong resemblance to the former as regards their flowers, and are more suggestive of some of the latter. They are natives of tropical Asia, and that for which Baron Schröder obtained an award of merit at the Royal Horticultural Society's meeting on May 28th, 1890—viz., *Sarcopodium Deari* (fig. 38), is a native of

Borneo and related to *S. Lobbi*, the flowers being yellowish veined and streaked with reddish brown, the lip very curiously formed and balanced.

Another species for which Messrs. Sander & Co. obtained a first-class certificate on June 24th, 1890, is *S. Godseffianum*, which comes from the Philippine Isles and belongs to the same section as that just noted; the colouring is, however, very different, the dorsal sepal being veined with purple on a yellow ground, the lip white spotted with rich purple. The flowers are amongst the largest of the genus.

Sarcopodium psittacoglossum was shown by Sir Trevor Lawrence, Bart., at the R.H.S. meeting on July 8th, 1890, but it did not secure an award, though it is very peculiar in form, especially the lip. The general colour is yellow with purple lines and markings, which contrast very markedly with the other portion of the flower. All these require to be grown in a warm house under similar conditions to the tropical *Bulbophyllums*.

ONCIDIUM SARCODES.

Messrs. Charlesworth, Shuttleworth, & Co., Park Road, Clapham, exhibited at the last meeting of the Royal Horticultural Society a group of well grown *Oncidium sarcodes*, &c., for which a silver Banksian medal was awarded. Some of the long branching spikes were 4 to 5 feet in length, and the group was very attractive. This reference was accidentally omitted from our report last week.

POTTING PLANTS.

BEFORE replying to the remarks of Mr. C. Lock I should like to compliment him upon the forcible manner in which he has expressed himself as heartily as I have on past occasions eulogised the grand plants he has staged at the western shows.

When my critic tells me "it is one of the greatest errors imaginable to pot a Palm loosely to induce free and rapid growth," I am inclined to think he is drawing largely upon his imagination to support so emphatic an assertion; certainly he gave us no facts to support it. I have seen on many occasions the grand Palms from Crediton, but the fact of their being remarkable examples of rapid growth does not in the least affect my remarks on potting Palms, which Mr. C. Lock takes exception to. I simply gave the reason why it was necessary to pot many plants firmly, which would in reality grow quicker with less firm potting. Under an artificial state of cultivation it is often necessary to work on lines directly opposite to those which, in connection with other circumstances, would secure equally good results. Those cultivators who fall into the habit of working in a groove, and who think the same methods are the best under all circumstances, are capable of achieving great results or of making conspicuous blunders. In the case of very large exhibition plants it is a matter of vast importance to grow them as large as possible in pots or tubs of limited extent, otherwise they speedily become too cumbersome to carry about, and it is only by very firm potting and high feeding that they can be kept in the best condition.

It has long been an acknowledged fact that comparatively loose potting induces quick growth in the majority of plants. Such quick growth is produced at the expense of floriferousness in some cases, in others at a sacrifice of colour in the foliage, but when the production of quick growth is the greatest consideration comparatively loose potting is one of the best methods of securing it, though of course other details of cultivation must be well carried out. There is much truth in the old saying, "Pot lightly for growing and tightly for blowing," and it has the advantage of being one which can be easily proved. Let anyone pot a *Melon*, a *Marguerite*, or a *Pelargonium* loosely, then in the same kind of soil pot others very firmly, and grow them side by side. Before many weeks a distinct difference in the growth would be seen. Two Palms given the same treatment would differ quite as much, but being much slower in growth the disparity would not be noticed so soon. Let no reader infer from this that I advocate now, or have ever advocated, loose potting as a general practice. But the illustration there given of the conditions, in regard to potting, under which Palms will make the most rapid growth, instead of being "one of the greatest imaginable errors," is a hard fact, which will remain long after the fine Palms from Crediton have ceased to exist.

My critic, in one paragraph, strongly advises growers of *Ericas* and *Dracophyllums* to hesitate before following my advice about keeping the collars of hardwooded plants slightly below the surface of the surrounding soil; then in the next paragraph shows clearly an additional reason why this should be done. I refer to that portion where he points out the fact that soil around newly potted *Heaths* is liable to drain away the water given before it has penetrated the old ball. Here is a clear case of one advantage of slightly lowering the centre. So long as the collar is not buried with soil, and the watering is carefully done, the practice answers well.

Before concluding, I must say Mr. C. Lock is drawing a very fine line of criticism when he objects to my advice that in some cases *Heaths* or *Ericas* only require shifting into pots one size larger, which he presumes would only be an increase of 1 inch in diameter. No experienced gardener would think of giving any plant quite so small a shift; but in hundreds of cases the ordinary shift of 2 inches would be

too much, though the plant yet required potting. There are always odd sizes of pots which come in for this purpose, and which can only be termed one size larger. Such hair-splitting objections show their own weakness,—H. DUNKIN.



PRESENT WORK AMONGST CHRYSANTHEMUMS.

To produce dwarf plants for grouping purposes, and for perfecting exhibition blooms a little later than the bulk of those treated in the ordinary way, the top is taken from the plant early in April, the stem being then about 1 foot high, according to the variety. Three growths are selected afterwards, all other shoots being removed as fast as they appear. The first bud which is formed on these new growths is preserved for developing the future bloom. Such naturally early flowering sorts as *Mrs. Falconer Jameson*, *Mrs. C. Wheeler*, and *Edwin Molyneux*, for instance, among the Japanese, are amenable to this treatment. It is not safe to treat similarly the incurved varieties. The blooms of this section need to be more solid in their "build" than the Japanese, and to procure this a longer season of growth is necessary to mature the wood sufficiently to give the best results.

MRS. ALPHEUS HARDY.

Much interest is now displayed in the varieties which constitute a section of the Japanese, now called the hairy family, of which *Mrs. Alpheus Hardy* was the first, and still the best, when seen in good condition, but unfortunately that is seldom. This variety has a weak constitution, and needs different treatment to that accorded the bulk of *Chrysanthemums*. The routine which appears to give the best results is procuring stout cuttings, growing the plants in small pots as compared to other sorts, employing soil of a lighter character, and avoiding the use of much manure, either in the compost or as a stimulant afterwards, as the roots appear to be weak and unable to imbibe strong manurial applications. A long season of growth under glass is also required. Some of the finest blooms obtained were the result of allowing the plants to remain in a light airy greenhouse until the middle of July, then placing them outside in a sunny position to mature the growth. Although it is not absolutely essential to obtain early bud formation to gain success with this variety, it is certainly advisable to obtain them as early as possible, for as a rule the blooms require a long season for development. Some of the finest flowers seen last year were the result of "taking" the buds in July. Some persons top the plants early in April, selecting two of the strongest shoots resulting. The first bud which these growths form is retained for giving blooms, all other growths being removed as they appear.

DESTROYING APHIDES AND MILDEW.

Green and black fly will soon be troublesome to the cultivator of plants, especially for large blooms. They attack the points of the shoots, and if allowed to go on unchecked do serious mischief. The greatest mistake made is in neglecting the application of a remedy, even for a few days after the appearance of either these insects. Prompt attention to dusting the points affected with tobacco powder at night and somewhat vigorously syringing the plants the following morning with clean water, one person holding firmly the point of the shoot in the hand while a second applies the water, will remove both insects and powder also. There is a tendency to mildew forming on the lower leaves of many plants this year, notably the *Queen* family. Dusting the affected parts with flowers of sulphur will have the desired effect. If not taken in hand at once the lower leaves will not only be spoilt in appearance, but the plants will be deprived of a supply of food which they receive through the leaves. It is always wise to maintain those near the base in good condition, especially during the early stages of growth.

CHRYSANTHEMUMS ON WALLS.

In most gardens wall space can be found for a few plants, which would otherwise be bare. By a very small amount of labour, and no expense, such sites can be made gay during November and early in December. I find this late supply of flowers exceedingly useful for vases when the bulk of the ordinary inside flowering plants are over. Instead of throwing the old roots away turn them out of the pots, remove the crocks and some of the soil, and plant them at the foot of the wall or fence, two to a yard, choosing the varieties which reflex their florets in preference to the incurved varieties, which hold moisture too long for their keeping quality. Pompons and single-flowered varieties give an abundance of blooms. No disbudding need be practised, but the number of shoots must be regulated according to the wall space, not overcrowding them, as firm growth is essential.

PROVIDING GOOD CUTTINGS.

Remembering the difficulty experienced in obtaining sufficient cuttings of new or choice varieties at the proper time it is a good plan to take off suckers that are sometimes found during the month of April,

when they are 2 inches long, instead of rubbing such growths off, as is generally practised. These, if inserted singly in small pots, root quickly, and if the plants are shifted into 5½ inch pots, allowing one stem to grow, this will produce a flower, also stout cuttings, in the autumn more freely than those plants will that are highly fed.

THOUGHTS ABOUT TOMATOES.

I WAS much interested in the contributions of Messrs. W. P. Wright and "W. K. W." under the above heading. It was good reading to me to see that white fly can effectually be destroyed. I have killed them one day, and a few days after had a larger army of them, until I almost began to think that killing agreed with them. Mr. Wright points out a very common mistake in planting Tomatoes in their fruiting pots. I have found that filling the large pots one-third only with loam mixed with a little burnt soil and soot is quite sufficient at planting. Another third is filled in and rammed down tight when the first two bunches of fruit are set. Later on small top-dressings of loam with a good dusting of artificial manure are applied. Water is sparingly given until fruit is formed, but after two or three bunches have fruit from half to three-quarters full size then the plants have a plentiful supply of liquid out of a tank which receives the bedroom slops, and this seems to suit them well.

Ham Green is no doubt a good fruit and is weighty, but is with me rather too strong a grower. Prelude if larger would be better than any to my mind, for it is a moderate grower and the freest setter of all. I note Challenger is mentioned, but no opinion given of it. I shall feel obliged if anyone who has grown it will give his experience, for I have several plants of that variety which I hesitate planting in quantity until I see how it has turned out with others. One of the most dwarf, early, and free cropping varieties is one I have grown under the name of Glamorgan, but it is unfortunately rather too corrugated and light. Early Ruby is the earliest of all, and is doubtless destined to become a great favourite for outdoor crops. It has well-formed fruits, and is dwarf in habit. Chemin, a French variety, is not mentioned by Mr. Wright, but is an egg-shaped early variety, of very good flavour, and crops heavily outdoors. A cross between a good selection of the Old Red and Prelude would, I believe, produce a Tomato good in all respects if only we can rely on "like producing like." The blood of the Old Red will have to be dipped into to produce any good all-round variety is my opinion, for we are breeding with varieties of less robust constitution and dwarf habit.

I have found that whatever may be the nature of the soil, the great thing is to make it as firm as can be, and avoid adding farmyard manure; Jensen's guano or liquid manure applied after two bunches of fruit have commenced swelling being quite early enough for feeding.

Bell's Defiance, mentioned by "W. K. W.," I have not heard of, but suppose it will in due course be procurable; so far I have not found it in any seed list.—H. S. EASTY.

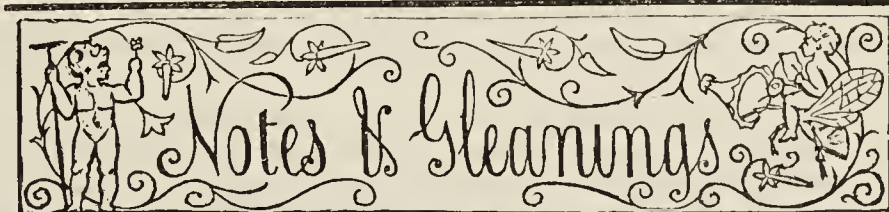
DANGER IN OLEANDERS.

IN the *Journal of Horticulture* (page 223) I find a letter signed "R. P. R." on the culture of Nerium Oleander, expressing surprise that it is not more often seen. Owing to the poisonous nature of the plant I for one denounce it in strong terms as one which should not be cultivated out of conservatories. In the "Gardeners' Chronicle" for 1844 appeared these remarks, "Powdered wood and bark of Oleander constitute at Nice the basis of an efficacious rat poison. A few years ago a child died from having eaten one morning a quantity of Oleander flowers. In 1809 when the French troops were lying before Madrid some of the soldiers went marauding. They cut the branches of Oleander for spits and skewers for the meat when roasting. The wood having been stripped of its bark and brought in contact with the meat was productive of terrible consequences, for of twelve soldiers who ate of the roast meat seven died, and the other five were dangerously ill." Whenever I see the plant in drawing or dining rooms I always warn mothers of young children against it, for if they were to put the flowers in their mouths death might be the penalty. I have known children in India, both European and native, die from eating the flowers. One meets with it in most gardens there, and there is a beautiful kind with double blossoms growing on parts of the eastern coast of Madras, especially at Paumben. Independent of my aversion to it on account of its noxious properties, the flowers in the house always, like the Tuberose or Jasmine, give me headache from the strong sickly odour emitted. The finest Oleanders I have ever seen in Europe were in an hotel garden at Spetzen. Its culture is easy enough, but the danger, especially to children, great.—JOHN COLEBROOKE.

GRAFTING APPLES AND PEARS.

THE present is a good time to insert grafts of approved varieties of the Apple and Pear. The grafts may be either worked on young stocks or on cut-back established trees. Of the several modes of grafting, that one known under the names of whip, splice, or tongue grafting is the best. The nearer the stock and scion are to each other in size the neater will be the union. The scions should consist of young, healthy, short-jointed, well-ripened shoots of from 9 to 12 inches long; selected about the end of January or early in February, and buried a few inches in the soil until the middle or end of March, according to the season, when

they should be engrafted on the stocks, headed back to the desired point a few weeks beforehand. In proceeding with the operation insert the knife in the stock 3 or 4 inches from the top, and cut off a wedge-like slice in an upward direction, nearly halving the stock (if a small one) at the top, sloping the remaining portion off to the bark immediately above a wood bud; then make a cross downward notch at the base of both oblique cuts, and corresponding upward slits in the scions enable them to be tongued into the stock. A keen-edged knife should be used to insure clean even cuts, so that the wood and bark surfaces shall fit closely together. The scion having been thus fitted to the stock it should then be bound thereto with a band of strong matting, beginning at the bottom and finishing at the top, where the matting should be made secure. This done cover the matting with clay (to which a little cow manure may be added), of the consistency of putty, making it firm, full in the middle, and tapering off at both ends; this will exclude air and preserve the grafts in a moist state. When the scions commence growth the matting or ligature may be cut.—H. W. WARD.



THE WEATHER.—The morning of the 27th opened dull, and in the low-lying districts of the metropolis there was a dense yellow fog. Monday was brighter but colder, and on this and the two following mornings frost was experienced, while cold north and north-easterly wind prevailed. At the time of going to press the wind remains in the north, and the weather, though bright, is cold.

— WEATHER IN THE NORTH.—After four fine days, the 23rd especially so, during which large quantities of Oats were got in, we have again plunged as to weather into midwinter. On the 26th a continuous snowstorm came on from the east, lasting till well on in the evening. Frost set in and still continues, 10° being registered on morning of 27th, and 16° on the following. The snow still lies all around.—B. D., *S. Perthshire*.

— MR. LEWIS CASTLE having resigned his position on the staff of the *Journal of Horticulture*, all letters and telegrams intended for him personally should henceforth be sent to his private address.

— COPPER INSECTICIDE.—Your correspondent who made brown carbonate of copper seems to have used copperas (sulphate of iron) instead of bluestone (sulphate of copper). The scum at the top was sub-sulphate and carbonate of iron, not sulphur at all. A trace of copper would colour the ammonia.—CHEMICUS.

— A NEW ROCK HOUSE has been added to the many attractions of Messrs. Veitch & Sons' well-known nursery at Chelsea, and will probably prove to be one of the most powerful of them. The structure, which has been specially erected for the purpose, is a broad, lofty, and handsome one, giving abundance of light. The material employed for the rockwork is tufa, and it has been admirably arranged. There are one central and two side beds, and they are furnished with a variety of foliage and flowering plants rising from a groundwork of Ferns. *Dracæna Goldieana*, *Caladiums*, *Bertolonias*, *Crotons*, *Clivias*, *Amaryllis*, *Rhododendrons*, *Anthuriums*, *Gardenias*, and *Pancratiums* are a few of its present occupants; and others will be substituted for them when their season of beauty is over, so that the house may be a permanent source of interest to visitors. There can be little doubt that the desired end will be achieved.

— DEATH OF MR. WM. BROWN.—In the Birmingham district no man was better known or more respected than Mr. Brown, who for nearly forty years was gardener to the late W. C. Alston, Esq., Elmdon Hall, near Solihull, whose sudden death from apoplexy on the 22nd inst. we much regret to announce. Many years ago he was a frequent exhibitor of the fine specimen plants for which Elmdon Hall was then famous. He was in frequent request as a judge at many of the exhibitions in the Midlands, and at his funeral in Elmdon churchyard, close by his house, there was a goodly muster of horticulturists from Birmingham and the adjacent districts.

— A LARGE ORCHID SALE.—On Tuesday, April 5th, and three following days, Messrs. Protheroe & Morris will sell by auction the Orchids collected by Mr. E. G. Wrigley, at Howick House, Preston, Lancashire. Particulars will be found in the advertisement columns.

— WE regret to announce the death of the distinguished ophthalmic surgeon Sir WILLIAM BOWMAN, Bart., which took place on the morning of the 29th inst., at Joldwyns, his residence near Dorking. His familiar presence will be missed from the meetings of the Royal Horticultural Society, to which he was a frequent visitor; and the orchidists will lose a devoted coadjutor in their favourite flowers. Sir W. Bowman died of pneumonia, at the age of seventy-six.

— GARDENING APPOINTMENTS.—Mr. W. Jarman, late of Chapel Hill House, Margate, has been appointed head gardener to Mrs. H. A. Brassey, Preston Hall, Aylesford, Kent. Mr. G. Clinging, for the last thirteen years head gardener at Marden Park, Caterham Valley, has been appointed gardener and bailiff to J. Brand, Esq., of Sanderstead Court, near Croydon.

— ADIANTUM CAPILLUS-VENERIS IMBRICATUM.—Messrs. Dicksons, Limited, Chester, send us a frond of this Fern, and it justifies their comparison of it with *Adiantum Farleyense*, but this is proverbially tender, while the new variety in question is practically hardy, though best when grown under glass, and is worthy of good cultural care.

— YOUNG VERSUS OLD VINE RODS.—I quite agree with what Mr. Iggulden says on this subject. I am at present removing old rods in a vinery planted only fifteen years ago. The young canes should be taken as near the base of the old Vines as possible, and not from an old spur, but if possible from a formerly dormant bud coming straight from the stem. We train the young rods, as your correspondent does, above the old ones, and cut the old spurs back as the young rods take their place. Generally the third year the old rods may be cut back, and this we do as soon as the fruit is cut.—R. L.

— WEATHER AT LIVERPOOL.—On several days during the past week we have had a good share of sunshine, which has brought fruit trees and other various plants in the garden on at a rapid pace. The evenings have been cool, with frost on many occasions. Friday was dull, and the greater portion of Saturday and Sunday brought us again a return of wintry weather. Snow and sleet, accompanied by a bitter N.E. wind, which lasted until evening, the night temperature being 20°. To-day (Monday) the wind has been intensely cold, but we have had a cheering sun throughout the day.

— FACTS ABOUT GRAVEL WALKS.—I hope that in these advancing times few will be found ready to carry out the "time-honoured practice" recommended by your correspondent Mr. Dunkin (page 224). Any one who would apply a dressing of weed-killer to "walks that have been well made in the first instance" and then in a week after dig over to the depth of 3 inches, can scarcely be said to be working on economic principles. To say nothing of the labour wasted in breaking up a well set crust, and in rolling it down again, the process will be likely to bring a fresh crop of weeds to the surface to require another dressing of weed-killer.—R. L.

— FREESIAS.—Referring to the article on page 219 in your last issue respecting the culture of this very desirable Cape bulb, I quite agree with your correspondent respecting the potting and compost, but I differ with him as regards the temperature at the flowering period. Your correspondent recommends a temperature of from 45° to 50°, as he finds the flower spikes are much finer than when the plants are grown in a higher temperature. My experience proves quite the contrary, as I have now a splendid lot growing in a temperature of from 55° to 60°, averaging eighteen to twenty-three flowers on a spike, whereas according to Mr. Jordan's statement he only had eleven flowers on a spike. I have enclosed a spike for your inspection to prove my statement to be correct. I potted my bulbs the first week in October.—G. PARRANT.

— A RECENT bulletin from the Mississippi Experiment Station gives an account of the SOUTHERN TOMATO BLIGHT, which was studied there a year ago by Dr. Halstead, and which had become so destructive as to cause alarm among the growers of that region. The blight is due to a bacterial germ. Plants first wilt, then lose their colour and die. This blight seems to be identical with a bacterial disease of the Potato, and it can be communicated from one kind of plant to the other. The same seems to be true of a blight of Melons and other cucurbitaceous plants which prevails in the same region. If this is true, it is plain that the soil may become contaminated with bacteria from any one of these three crops, so as to make it unfit for either of the other two. The blight can be more readily disseminated by the Potato, since it is propagated by tubers, which may carry the germs.

— POTTING SOILS.—With reference to the note on the above subject by "L. J.," on page 227, I wish to reply to his question as to "why it is a rule to mix peat with loam?" The practice of mixing peat and other ingredients with loam is governed by the nature and quality of the loam in use. If good fibrous sandy loam is procurable there is little necessity for mixing peat or leaf soil with it, as the majority of stove and greenhouse plants in a healthy condition would not require such additions; but when suitable loam is not at hand, but one quality only, and that of a fibreless and retentive nature, there is occasion to exercise discretion as to what ingredients would be most suitable to mix for certain plants. To my mind there is nothing better to make a close retentive loam more suitable for potting purposes, and for keeping the soil sweet, than a mixture of lumpy peat and charcoal, with an addition of good leaf soil, more or less, as the case may be, to encourage the growth of roots.—J. CLARKE.

— A GOOD SHOW.—A call on Mr. G. Clements at Haseley Manor, Warwick, revealed the fact that he is making good use of the range of houses recently erected. I was particularly struck with the fine display of flowering plants in the conservatory, where bright and varied colours met the eye on all sides, and the air was redolent with the perfume of Mignonette, Hyacinths, Roses, Jonquils, Narcissus, and Heliotropes. Among several varieties of Tulips *Gloria Solis* was conspicuous by reason of its large, full, and brightly coloured flowers. Canary Bird is an attractive single yellow, which Mr. Clements speaks highly of as a forcer. Among Primulas Ruby King and Purity were represented by well grown plants carrying abundance of flowers thoroughly characteristic of their respective types. Cinerarias, though not large, were in excellent condition, good heads of bloom being produced in comparatively small pots. *Imantophyllum miniatum*, *Deutzias*, *Spiraea japonica*, and showy Pelargoniums all contributed to the general effect, which was the more enhanced by the scrupulous cleanliness of both conservatory and its occupants.—H. D.

— BEGONIA BAUMANNI.—This new species, for the introduction of which we are indebted to Messrs. Lemoine of Nancy, was one of the notable new plants of last year. Occasionally a slight fragrance has been observed among some of the Tuberous Begonias, notably in *B. Maritani*, but it is usually only a suspicion. *B. Baumannii*, on the contrary, has a distinct pronounced Tea Rose-like odour, which will not only make the species valuable to the growers, but offers possibilities of crosses with the large-flowered hybrids, which will enhance their value, especially for conservatory decoration. Messrs. Lemoine recommend that this species should be grown in the open in full sunlight, in which position they are said to grow more sturdily. Messrs. Lemoine, this season, offer a new fragrant species, *B. fulgens*, which was discovered in the same locality as *B. Baumannii*, in the mountainous regions of Bolivia, near the Peruvian border. The flowers of this species are said to have a Tea Rose fragrance, and to be of a deep Strawberry red.—(*American Garden and Forest.*)

A GARDENING TOUR IN IRELAND.

NOTES descriptive of my gardening tour in the north of Ireland were contributed at intervals to this Journal some time ago, but as then intimated the journey was extended far beyond the northern counties, and I am now desired (before retiring from 171, Fleet Street), to devote a chapter to a brief review of what was seen in the remaining portion of the expedition. It can only be regarded as a hurried jotting down of impressions and ideas formed on the way, for a detailed account of the places visited would occupy more space than could be devoted to this matter, especially if the larger subject of possible fruit culture extension were entered upon, as an investigation of this, it may be remembered, was one of the chief objects of the visit. A glance at the principal matters of horticultural interest must therefore suffice.

HILLSBOROUGH CASTLE.

Crumlin was the point of departure from Antrim, and after a pleasant call by the way at Lisburn, where one essentially town garden was visited, abounding in well-grown fruit trees, Hillsborough in Co. Down was reached, a few miles south-west of Belfast. There a long stay could have been enjoyed had time permitted, but the arrangements made would not allow this, so that when we succeeded in finding Mr. T. Bradshaw, the courteous chief in charge of the gardens at Hillsborough Castle (the residence of the Marquis of Downshire), we had but little time to spend in examining the attractions of a most interesting garden. The estate is situated on the upper portion and slopes of a considerable hill, the garden occupying the lower levels, and in some dells and sheltered nooks on the way down Conifers flourish grandly. Very seldom indeed are such vigorous, well developed, and finely proportioned trees seen in England, where too often the choicer Conifers have either a stunted or a drawn appearance, just as the position is too much exposed or unduly sheltered. Soil, climate, and situation

evidently suit them at Hillsborough, and though the majority have only been planted about thirty years, they have attained surprising size, some exceeding 70 feet in height, as *Abies Douglasi* for example, and other species of *Abies*, *Cupressus*, *Cedrus*, &c., are almost equally fine. One common Yew is an enormous specimen, the widely spreading branches covering a space 75 yards in circumference; an extremely old Cedar of Lebanon is also pointed out as having been brought there in the time of the Crusaders.

In the garden itself is a fine collection of fruit trees, the 9 acres of walled-in kitchen garden comprising Apples, Pears, Plums, Peaches, Apricots, and Cherries, with small fruits, such as Gooseberries, Currants, and Strawberries in quantity, all doing well. The north wall is a remarkable one, being 260 yards long, and covered with Morello Cherries, from which large crops of fruit are obtained annually. The glass houses comprise the usual accommodation for plants and fruits, Vines being especially well grown, for Mr. Bradshaw had a valuable training under the late Mr. Roberts at Charleville at the time

valley, and river. The special object of alighting here instead of proceeding direct to Dublin was to drive through one of the principal fruit-growing districts of Ireland, for within the eight or nine miles from Drogheda to Gormanstown *viâ* Julianstown, and across the valley of the river Nanny, are some of the best market gardens, chiefly devoted to fruit culture, that I saw in the whole of my journey. Many of them would, in fact, compare favourably with those in the west of London, both in system of cultivation and the condition of the trees. It is only fair to say that my attention was called to this district by Mr. W. H. (Bullock) Hall of Newmarket, who has done so much in the south of Ireland to encourage an extension of fruit culture amongst the cottagers and small farmers. We had hoped to have had the company of Mr. Hall on the occasion of the visit under notice, but he was unavoidably prevented undertaking the journey then, though since he has travelled over the same ground in company with Mr. T. F. Rivers of Sawbridgeworth, and the description of his journey has been issued as a small pamphlet of fourteen pages (Cambridge University

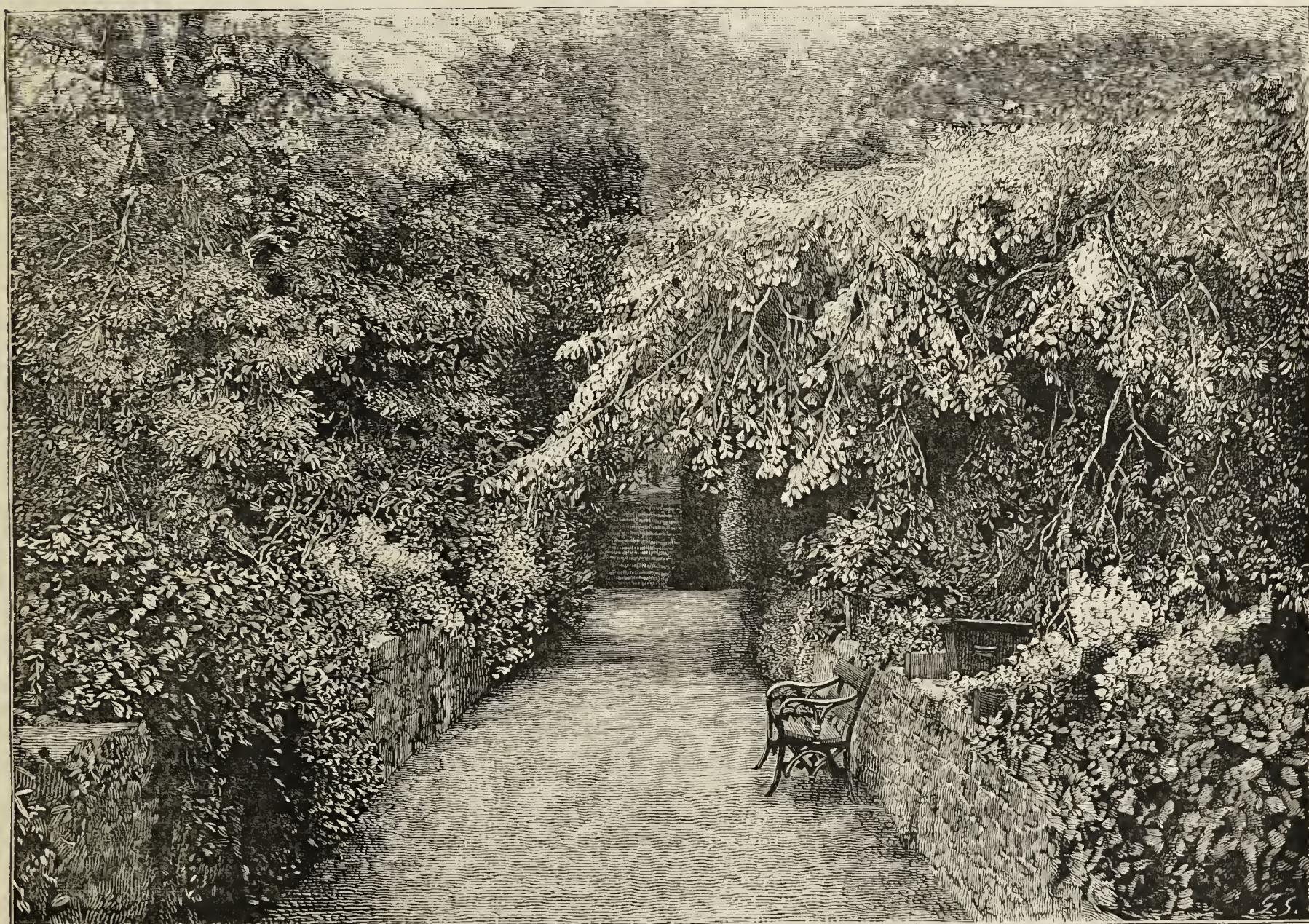


FIG. 39.—A BRIDGE IN GLENSTAL CASTLE GARDENS.

when the wonderful bunches were shown from the Vines grown there. Hillsborough is also the home of the seedling Grape Lady Downshire, to which reference has been previously made in this Journal, both at the time it was exhibited in England and more recently by Mr. H. W. Ward. It is only necessary to say that it was derived from a cross between the White Gros Colman and Madresfield Court, the former being the seed parent, and it possesses large oval berries, which assume a golden colour when ripe, and at the time I tested it the flavour was very satisfactory. It is a fine looking Grape, forms a massive bunch, and keeps well; for Vines have been started in December, the fruit being ripe by the end of July, and it has been kept in good condition until January of the following year, the Grapes from later Vines having been kept until the early spring. Throughout the establishment it is evident that much practical care is bestowed upon the management, and the results are very satisfactory.

THE FINGAL FRUIT DISTRICT.

Returning to Belfast a start was made next day for the south, and the first stop was made at Drogheda, after leaving the Boyne by the lofty and long bridge, which commands a fine view of the historic town,

Press), and contains many facts of interest to those concerned in the matter.

With regard to the Drogheda district already mentioned, Mr. Hall says, "In the district called Fingal, extending south of Drogheda as far as Gormanstown, there is to be seen, as far as I know, the only extensive area at present devoted to fruit-growing in all Ireland. Having visited Gormanstown in 1889, I can corroborate Messrs. Gordon and Castle's report of the thriving condition of that district. From notes taken on the spot in May, 1889, I gave a specimen of a typical acre farmed by the Postmaster at Gormanstown. It had two-fifths Raspberries, two-fifths Gooseberries, and one-fifth Currants and sundries. Standard Apples and Plums were dotted about, and the 5 feet space of ground between each row of bush fruit was utilised for Potatoes and Cabbages. As I sat in the clean and comfortable home of this grower, the tidy housewife exclaimed, 'The fruit is a great paying business.' The husband, referring to the Irish small farmers in general, added 'But they are not refined to this business yet.' In this district of Fingal the inhabitants are of Danish descent."

The difference in the general aspect of the district, the cottages, the condition of the occupants, and the surroundings altogether,

is surprising as compared with other portions of the country where cultivation of the land is the principal industry. There was a greater appearance of comfortable existence there than anywhere else that came under my notice, excepting perhaps in some parts of Antrim. It is therefore easily understood why attention has been called to this district, for it does not seem to be any better adapted for fruit than many other parts of Ireland; in fact, it is not so favourable as some, for it is near the east coast, very exposed, and it is only by means of very high hedges and protective planting generally that success has been secured. The system adopted is the same as that followed here—namely, standard trees for the permanent stock, with dwarf trees and bush fruits between; also intercropping with vegetables and flowers, not a foot of the well-tilled ground being lost. Over the greater portion of the eight-miles drive there is a constant succession of these gardens, and there is little to judge between them as to relative merit. It shows most convincingly what well directed industry can accomplish, and in connection with this matter the following statement by a high authority in Dublin is of interest.

FRUIT AND FLOWER CULTURE IN IRELAND.

The climate of Ireland compares very favourably with that of the places where our large fruit supplies come from. Glengariffe and Crookhaven are 2° warmer in spring than in Cork, while Cork is 4° warmer than Dublin. The mean temperature of Dublin, again, is 4° higher than that of Paris or London. In Glengariffe Daffodils can be had in bloom when they are quite green in the neighbourhood of London; and when the markets here are supplied with Tomatoes forced in hothouses in the Channel Islands Tomatoes could be ready here for market without forcing; and very large quantities of forced vegetables are imported from France yearly, which could be ready for market just as early here. Mr. Baylor Hartland, one of the largest growers in county Cork, writing four years ago, says:—"When I read of 2s. 6d. a pound being paid for early Tomatoes and from 1s. 2d. to 1s. 6d. a pound for early Potatoes, or from £150 to £200 per acre, it may be asked what the county Cork, with its splendid character, is doing? Every authority has admitted the suitability of the soil of Ireland for fruit producing.

"More than 100 years ago Arthur Young wrote:—"I never beheld trees so laden with Apples as in Sir Lucius O'Brien's orchard in Dromoland. It amazed me they did not break under the immense loads which bowed down the branches." But in order that fruit growing may be properly developed many details must be taken into consideration—temperature, moisture, aspect of the land, so that the best and earlier fruit may be had. This could only be done by providing the means for thorough horticultural training, and my suggestion would be that colleges should be established for the purpose in suitable districts throughout Ireland. I may mention that for years past fields of Daffodils for market have been grown in the south of England. The flowers are generally ready towards the end of February, but in county Cork they can be ready in the first week of February. One of the largest growers of Daffodils in England, to whom Mr. Hartland of Cork sent some Daffodils, told me that nothing like them could be grown in England."

Guernsey is an island containing 15,560 acres, little over 10,000 of which are thoroughly cultivated, and yet Ireland, which possesses great natural advantages, has to import largely from it every year. Jersey makes a speciality of early Potatoes, and five years ago the export trade in this article brought in £300,000, though the total area available is only 20,000 acres. I might say that Crookhaven, Kenmare, and the land lying south and west of them have the same mean temperature as the Channel Islands. In France the security of tenure and the encouragement of State wrought an enormous change. There are horticultural colleges in the chief centres, and annual exhibitions of produce which encourage the producers to do their utmost to develop the resources of the soil, while arrangements have been made by which everything necessary for carrying on the work, for the preparation of the soil, and for the sale of the produce in the market is ready at hand. What has been done in France could be with perfect success done in Ireland. I have often thought that, as has been done with a similar district in France, some of the wildest parts of the west coast of Ireland could be reclaimed, and give ample employment to large numbers of the peasantry.

Reluctantly quitting our Fingal fruit farms, we speed along to Dublin, and a day was very agreeably spent in an inspection of the Glasnevin Botanic Garden, one of the Government establishments, which under the superintendence of Mr. F. Moore, a worthy successor to a worthy sire, has become one of the most interesting gardens in the British Isles. It shows far more of horticultural practice than is usual in such gardens, and presents, in fact, just that combination of practice with science that is the requirement of the age. I cannot now give a description of this garden, but as the Trinity College Botanic Garden, where Mr. F. W. Burbidge is the respected Curator, was visited on the return journey, I may at some time, if opportunity presents itself, say something about both these widely noted gardens.

KILLARNEY.

From Dublin a journey to Killarney was commenced under most unfavourable conditions as to weather, a gloomy sky and a persistent downpour inducing an alteration in the programme, and a stay was made amidst the delightful scenery of Killarney's lakes and mountains,

awaiting finer weather. Happily this came in time to permit a full enjoyment of Nature's attractions in this charming district.

"By Killarney's lakes and fells,
Emerald isles and winding bays,
Mountain paths and woodland dells,
Memory ever fondly strays.
Bounteous Nature loves all lauds,
Beauty wanders everywhere,
Footprints leaves on many strands,
But her home is surely there.
No place else can charm the eye
With such bright and varied tints;
Ev'ry rock that you pass by
Verdure brooders or besprints.
Virgin there the green grass grows,
Ev'ry morn springs natal day;
Bright-hued berries daft the snows,
Smiling winters frown away."

Every horticulturist who visits Killarney is astonished at the huge specimens of *Arbutus Unedo* ("The Strawberry Tree") which abounds there, the moist warm climate evidently meeting its requirements exactly, and it is not uncommon to see examples from 12 to 20 feet high, with substantial stems and bushy heads. When laden with the bright red fruits in late autumn and winter these must be extremely beautiful.

FOTA.

Cork was the next destination, and a trip was undertaken to Fota Island to see Mr. Smith Barry's celebrated garden, which contains such a wonderful store of choice trees, shrubs, and plants, many of which are too tender to endure the climate of England, except in the extreme west. A volume might be written describing the treasures of this garden, for a visitor might easily imagine himself to be in a subtropical climate judging by the plants around him and the way they flourish. Avenues of small Palms, and islands covered with Bamboos, Phormiums, &c., give some idea of what is to be seen. No horticulturist should leave this part of Ireland without paying Fota a visit.

GLENSTAL CASTLE.

After sundry difficulties by the way Co. Limerick was entered, and there Glenstal Castle, the residence of Sir Charles Barrington, Bart., a few miles from Murroe, was the destination, as one of the principal gardens in the county, and the south of Ireland generally. Moreover, we had kindly invitation from our good friend Mr. Richard Weller, who has charge of the Glenstal garden and farm, and an enjoyable stay was made, the most restful and pleasant in the whole of a hasty scamper. The castle and grounds occupy an elevated position some hundreds of feet above sea level, and extensive views of mountain scenery are obtained from several points with long stretches of open country across Limerick and neighbouring counties. The castle itself is an imposing building, and is surrounded by well planted grounds, but the great charm of the place lies in the magnificent dell, suggestive of some seen in Scotland. Indeed, I do not remember seeing on a private estate anything to approach this, except at Dupplin Castle in Perthshire, and that I fancy is much less extensive than the one at Glenstal. The latter is two miles in length, very deep in parts, densely clothed with luxuriant trees, shrubs, and Ferns, the greater portion in a perfectly natural condition, with winding walks along the sides and over the little stream at the base. Nearer to the garden some tasteful additions have been made by planting shrubs, especially Rhododendrons, and just at the point where it is crossed by the old bridge shown in the engraving (fig. 39) it is a luxuriant mass of vegetation, to which justice can scarcely be done in such notes as these.

The gardens are remarkably well kept, and, notwithstanding the exposed position, excellent supplies of fruit and vegetables are produced; but the labour must be great, not only on account of the elevation, but because there is a succession of terraces levelled, as it were, in the side of the hill. Mr. Weller, however, is just the man to delight in overcoming difficulties, and the condition of Glenstal Gardens throughout is a sufficient indication of what he can do in that direction.—LEWIS CASTLE.

MESSRS. JAMES CARTER & CO.'S NEW PREMISES.

EXTENSIVE as were the premises in which the above firm have for some years transacted what may be fairly described as their world-wide business, they are now much more capacious, complete, and imposing, by the acquisition of a building that is admirably adapted for the purpose which it now serves so well. The building which has for many years been occupied by Messrs. Day & Martin is now in the possession of Messrs. Carter & Co., and instead of its being the distributing centre of material for brightening boots will henceforth supply the means of brightening homes with flowers, and furnishing gardens and fields with wholesome food for man and beast, for it is mainly devoted to the retail and export department of their trade in flower, vegetable, and farm seeds. In passing through its spacious colonnades, galleries, and numerous rooms, the visitor might be excused for thinking there was space enough for all the firm could do, yet it is only one of three separate blocks, two almost facing each other in one of the busiest thoroughfares in the world (High Holborn), and a third, the wholesale warehouse, contiguous but obscured by buildings fronting the street. The latest addition is a most valuable one, commanding in appearance by its fluted columns and Royal arms, also convenient alike in position and design for the object to which it is devoted.

A visit to the building such as was paid last week, when the season

of seed distribution may be said to have fairly set in, could not fail to impress anyone with the magnitude of the trade as conducted by a great London seed firm. Quite a regiment of workers appeared to be as busy as bees in their various departments. Seeds were being cleaned, by steam of course, and the thoroughness with which this work is done was exemplified by an incident. A fine sample of Mangold Wurtzel seed was being passed from the machine into sacks, when the quick eye of the manager detected a few small bits of dried stems in it, at which surely no farmer would have complained; yet the order went forth "Pass it through again, all the bits must come out." By the languid "Yes, sir," in which the order was acknowledged it was evident the men thought the seed was clean enough for anybody; however the "bits" had to come out, and absolutely nothing but clean new seed go into the sacks. Speaking of Mangold seed proper, nothing in the building is more indicative of a "big trade" than 120 tons of this seed alone in what is called the "Mangel avenue," and which will be distributed over the length and breadth of the land, also some probably over the sea during the season of delivery now commencing. Another great "line" in which the trade is evidently brisk is the Elephant Swede, which appears to have "caught on," for dozens of people were busy packeting, parceling, boxing, and sending off seed of this variety alone. Bold fine seed it is, and distinct in appearance. The mention of "boxing" reminds of the huge piles of boxes of nearly all sizes, and containing all sorts of seeds, waiting for the railway vans, which come twice a day for clearing.

The business is necessarily conducted in departments, such as farm root seeds, Clover seeds, and Grass seeds, all in enormous bulks; garden vegetable seeds in capacious galleries; flower seeds in stacks of drawers innumerable; made up and making up "collections" small and large for prompt transmission; iron tanks of seeds for export to afterwards serve as water stores; then may be seen long rows of neatly dressed girls at work in the order department, checking and comparing the parcels with the forms to secure accuracy in execution as far as this is possible. Employment of a light character is found for a large number of females, who thereby earn a good livelihood, and are evidently happy and contented. There are writing rooms, catalogue rooms, posting rooms, in which the nimble fingers of girls find appropriate exercise under careful supervision, and are kindly and courteously treated. In the ledger rooms, of course, only experienced men are employed, and the presence of so many actively working tells very plainly that the "busy season" has at last set in. If purchasers of seeds did but know the high pressure and long hours that have to be endured at particular times they would send their orders early, in advance of the sowing season. Still, the resources are equal to all demands, come whenever they may.

No pains are spared, nor time and labour begrudged, by the firm in satisfying themselves of the quality of the samples of various seeds, and the work of the expert in the analyst's testing room was not envied, for he was poring over Grass seeds with a magnifier as sedulously as if hunting for diamond grains, though in all probability he was searching for faults in samples before the purchase of stocks.

An inquiry for the pedigree Wheats was met by the answer, "Nearly all gone," exhausted by America, Canada, and Australia, where they are found to be of special value; but the trade in Oats, the White Cluster especially, and the Goldthorpe and Prize Prolific Barley was going briskly on. The last-named is a Canadian favourite, the first consignment sent by the firm on a Government order being 10,000 bushels. The trade in Potatoes, too, was never so active as at the present time, both home and foreign orders being far in advance of any previous year. This may, perhaps, be attributed to the prevalence of the disease last year, and a prudent desire for a change of seed. Be that as it may, the facts are as stated, and the run on Potatoes has exceeded expectations.

Passing from great departments to small we come to the bird seed trade. A few years ago this department was opened as an experiment, not at first with very encouraging results, but by persistent advertising it is now a profitable branch, affording employment to a separate staff constantly, for if the seed-sowing period is short, the seed-eating season by cage birds is all the year round. The word "small," as employed in this connection, must be regarded as comparative, for between 6,000,000 and 7,000,000 packets of bird seed have been sold, and canary seed is purchased by the ton; so that, after all, "great" would, perhaps, be a more accurate description than "small" for this branch of a multifarious and far reaching trade, which is conducted as well as long experience can teach, and made what it is by enterprise and skill. Messrs. Carter & Co. are to be congratulated on the fine building that they have been so fortunate as to secure.

MR. ALDERMAN MARRIOTT'S GARDEN AT COVENTRY.

IN the Journal of January 21st of the present year you gave an illustration of the grand example of *Ixora Duffi* exhibited at Edinburgh by Mr. W. Finch, gardener to Mr. Alderman Marriott, Coventry. I called on Mr. Finch a few days ago to see how the "giants" were looking, for there are many very fine specimen stove and greenhouse plants in various stages for Wolverhampton, Shrewsbury, and the other great shows, and all look as though serious business was meant later on. Mr. Marriott's garden is only a small one but crowded with glass structures, some devoted entirely to plants, others to Cucumbers, Vines, and Peaches, and there is a good collection of Orchids.

In one of the Orchid houses is a very fine specimen of *Dendrochilon*

glumaceum with fifty pendant spikes of creamy white colour, resembling to a great extent an ear of Barley, but smaller, and deliciously fragrant. Close by was a fine specimen *Cymbidium Lowianum* with five very fine racemes with seventy-eight blooms on them. *Lycaste Skinneri alba*, *Cypripedium Lawrenceanum*, *Phalænopsis*, including a deep coloured *Schilleriana*, *Dendrobium Ainsworthi*, and many other Orchids are now in bloom. *Anthurium Rothschildianum* is also in bloom.

The collection of plants there will always repay a visit, and the gardens are but a short distance from the station, close by Messrs. Perkins & Sons. A house of specimen *Ericas*, *Phenocomas* and other hardwooded plants alone is worth seeing, and those who are in the habit of seeing Mr. Marriott's specimens at the leading shows know that they combine first-class quality with size. Mr. Finch is one of the best cultivators in the kingdom, and so every plant grower would say after a visit to the Queen's Road Gardens.—W. D.

THE IVY-LEAVED SENECIO.

THE Ivy-leaved Senecio (*S. macroglossus*) is one of the most useful of winter-blooming plants. It has been in flower since December, and is now going out of bloom. Winter-flowering plants which will do well on the roofs of greenhouses are not so numerous that so useful a one



FIG. 40.—SENECIO MACROGLOSSUS.

as this should be neglected. The flowers resemble those of the beautiful and popular yellow Marguerite, *Chrysanthemum Etoile d'Or*, but are of a somewhat lighter yellow or creamy hue. They are produced very freely, and at a time of the year when greenhouse flowers are scarce; hence they are doubly valuable. The leaves, however, are as attractive as the blossoms, bright and cheerful as the latter are. They closely resemble those of the small-leaved Ivies; in fact, are difficult to distinguish from them, and are highly ornamental.

The plant does best when planted out and trained up the roof of a house; but may also be well grown in a pot. In either case good drainage should be provided, and a compost of light sandy loam with a little leaf soil will be suitable. *Senecio macroglossus* has been neglected too long. Flowers and leaves are represented by the engraving, fig. 40.—P.

OPEN AIR PEACHES.

I FULLY agree with the opening sentence of "Nous Verrons" (page 195), and also feel that some good will result from this discussion in dispelling "rule of thumb" practice, and also in upholding the practical remarks of Mr. Iggulden, as published in his article at page 78. I wonder what our nurserymen would think if they were called upon to stop sending out trees after November, for that is what "Nous Verrons" remarks almost amount to. They would say, "If this is your science, if science at all, let us be done with it." Oh no, "Nous Verrons," let us have science and practice hand in hand, one to help the other.

It is indeed fortunate for "Nous Verrons" that Mr. Iggulden added as a rider to his original article when remarking on the lifting of young trees in full flower, "Or even when they have shoots on them 6 inches long;" but I must inform him that as this did not occur in the original article on which my observations were founded, nor in "Nous Verrons" critique, "the objection of moving trees so late as May," could not have been his motive in criticising the article in question, and yet he says now "that this has been his principal objection." Now, "Nous Verrons," do be a little consistent.

I will give him the benefit of the doubt that he really did interpret the sentence on root-lifting in the sense that he makes out, "that he took it to mean that Mr. Iggulden really recommended the trees to be operated on with the fruit on them," although I should have given him credit for thinking differently. But according to his observations at page 195 "his principal objection throughout has been to condemn moving trees so late as May." Mr. Iggulden really recommended in his original article, root-pruning or root-lifting, whatever you may like to call it, the trees to be operated on in the autumn; the other comments referring to exceptional cases.

The advisability of lifting Peach trees with shoots on them 6 inches long I should dispute myself, so I must decline lifting a tree at this stage, even for experimental purposes; but at the flowering stage there certainly would not be extra work entailed, the root action would only be just commencing. Science certainly has made rapid strides with "Nous Verrons." He can cut "all" the roots off a Fuchsia, and it will grow just as well without them as with them; and yet he rises up and condemns the advisability of lifting a Peach tree at the flowering stage, when root action is commencing, and with its full complement of roots to start with. I wonder how many hundreds of Peach trees are planted in Peach houses at the season of the year when growth is commencing, and yet they make satisfactory growth. The best time to move deciduous trees is either when the leaves are falling or root action just commencing. In either case they become established quicker than when dormant. If circumstances arose for me to plant young Peach trees at the flowering stage, I should pick all the flowers off, and I should certainly be woefully disappointed if the trees did not make a successful growth; in fact, gross mismanagement would only prevent it from being otherwise.

"Nous Verrons" latter comment on root-lifting is very conflicting with what he stated at page 144. At this latter page he condemns it as useless if the trees are in "full bearing order." It is there advised "to crop to regulate the roots and growth," or, in fact, if the trees are capable of setting and forming fruit the operation would be useless. I say that the views as expounded by "Nous Verrons" are entirely at variance with science and good gardening. Does he think that root-lifting is only needed or adopted to merely check grossness or over-luxuriance? If he does, I do not. Root-lifting, not root-pruning, I look upon as a necessity on our cold soil, and also look upon it as a needful part in the routine of culture with Peaches on open walls. Under this system active feeders are encouraged, which in their turn supply aliment to the trees, and so assist them in perfecting the fruits, so that they may become large in size, of good colour, and finish satisfactorily in every respect.—A. YOUNG.

THINNING, DISBUDDING AND CLEANSING PEACHES.

THINNING the fruits of Peaches and Neectarines where too thickly set will need attention, removing those that are badly placed first, and performing this often-neglected operation gradually. Disbudding, also, should be commenced early and followed up at short intervals until no more shoots are left than are necessary for bearing another season, attracting the sap to the fruit, and for furnishing young and extending trees. Syringe thoroughly in the morning and afternoon, except when the trees are in blossom or the days are dull, when damping will be sufficient. Trees in blossom require a gentle warmth in dull and cold weather to permit a circulation of air, and to promote the steady advance of the flowers, a temperature of 50° to 55° in the daytime, with ventilation, insuring a good set in most cases. The inside borders must not be neglected in the supply of water, and as the surface is often moist through syringing examine them occasionally, and when any is needed afford it in sufficient quantity to moisten the soil down to the drainage. Aphides are often troublesome, and must be destroyed by fumigation with tobacco, which, however, should be done carefully, having the foliage dry, and not giving too much. Tobacco water is effectual, and various insecticides answer also if the instructions are followed carefully. Brown aphides are more difficult to deal with than green fly, as they throw off solutions intended for their destruction; but the narcotic properties of tobacco water overcome the pests. This can be applied with a brush, or rub the affected parts gently with the fingers dipped frequently in the liquid. A few minutes spent in this way at first attacks often saves a whole house. Syringing the trees with a pint of strong tobacco juice to 3 gallons of water acts as a preventive and remedy. Soapy solutions are potent for the prevention and destruction of red spider, and are also useful against mildew; but for aphides a decoction of quassia chips is by some preferred to tobacco water. To kill black and brown aphides a stronger solution is required than for green fly—say, 4 ozs. of quassia chips steeped overnight in a gallon of rain water, then boiled a quarter of an hour, adding to it as it cools 4 ozs. of softsoap, straining, and applying it to the infested shoots and leaves with a brush, or dipping them in the mixture rub gently with the fingers. The material is sooner applied with a syringe, and better

with a spraying nozzle than through a rose; but we find it best to go over the trees in the manner indicated, and having dressed the worst parts spray the trees thoroughly, syringing the following day with clear water. If repeated twice or thrice the black and brown aphides are easily got rid of; but it is not necessary nor desirable to use the mixture so strong for green aphides and red spider, as it is safer and quite efficacious at half strength, having 2 gallons of water instead of one.—G. A.



MR. W. J. GRANT.

THOSE of our many readers in the Rose world who are acquainted with this gentleman will be glad to hear that he is recovering from the severe accident he met with on the 3rd December last. He is now able to get out of doors for a short time every day when the weather is fine, and is looking forward to resuming his duties as Commissioner of Agriculture and Horticulture in the county of Monmouth. Mr. Grant's recovery was not at one time anticipated, and speaks most highly of the great skill of Mr. R. Brewer, a celebrated surgeon in Newport, and his nurses, especially nurse Darriott of the Newport Hospital. He has also received the greatest kindness from the County Council.

ROSES AND THE FROST.

REFERRING to "W. R. Raillem's" notes in last week's issue (whose pars, by the way, are most interesting to Rose amateurs), I quite agree with him as to the damage occasioned by the severity of the past and previous winters. After the winter of 1890-1, I vowed I would earth up my H.P.'s in future; but, alas! the wintry season came on so suddenly that I had barely time to put a few shovelfuls of earth on the crowns of my dwarf Teas, and the poor H.P.'s, with their ill-matured wood, had to take their chance.

Well, I believe that the damage was not very great until the severe wind frost of a month ago; at that time the H.P.'s were starting into growth, but the killing frost which occurred a month ago took all the life out of 'em.

Pruning on Saturday last, it was not a question of how many buds to leave, all shoots had to be cut right down into the earth. I fear the consequence will be, as I noticed last year, that the "breaks" from the older wood will not be very strong or floriferous.

My dwarf Teas, I find, with only slight earthing-up, are green enough where covered. I levelled the beds last week and took away the other protecting material, and I hope that I shall not find the pith discoloured far down. By the way, I notice that the tops of Madame Cusin are, as usual, much blackened. This Rose seems to be very, very tender.—EDWARD NICHOLS.

ROYAL METEOROLOGICAL SOCIETY.

AT the last meeting of this Society, Dr. C. Theodore Williams, the President, delivered an interesting and suggestive address on the "Value of Meteorological Instruments in the Selection of Health Resorts." He drew attention to thermometers, maximum and minimum, as the foundation stone on which medical climatology rests, and instanced effects of extreme cold or heat on the human organism. The direct rays of the sun are of the greatest importance, and in health resorts should be utilised to the full; in fact, only climates where during the winter months even a delicate person can lie or sit for several hours a day basking in the sunshine are to be recommended for most complaints, and the various forms of sunshine recorders are used to aid the medical adviser in choice of such health stations. After referring to the value of rain-gauges, hygrometers, and barometers, Dr. Williams stated that many health resorts owe their reputation almost solely to their shelter from cold winds; for instance, the advantage in climate which Hyères and Mentone enjoy over Marseilles is chiefly due to their being more sheltered from the Mistral, or north-west wind, the scourge of the lower valley of the Rhone from Valence to Avignon. He went on to describe the climate of the Riviera, illustrating it by lantern slides from recent photographs, including views of Hyères, Costabella, Cannes, Nice, Mentone, San Remo, &c.; and he showed the three principal causes of the warm winter of this region to be (1) the southern latitude; (2) the protection from cold winds by mountain ranges; and (3) the equalising and warming influence of the Mediterranean Sea, which, being practically tideless, is always equally potent, not varying with hour and season. Dr. Williams mentioned the weak points of the South of France climate with its blustering mistral, its occasional cold bise, its moist scirocco wind, but summed up the Riviera winter climate as being as a whole clear, bright, and dry, with fog and mist practically unknown, with a winter temperature of 8° to 10° higher than England, though subject to considerable nocturnal radiation, with about half the

number of rainy days, and four or five times the number of bright ones which we can boast of, with cold winds and cold weather, without which it would lose its health-giving effect.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22ND.

SCIENTIFIC COMMITTEE.—Present: W. Blandford, Esq., in the chair; Rev. W. Wilks, Mr. Lynch, Mr. Michael, Rev. G. Engleheart, Prof. F. Oliver, and Dr. Masters.

Hybrid Narcissi.—Rev. G. Engleheart exhibited further specimens of his reciprocal crosses between *N. Corbularia monophylla* and *N. triandrus*, which showed that the same results accrued in whichever direction the cross was effected. A botanical certificate was awarded to Mr. Engleheart in recognition of the interest and success of his experiments.

Swellings on Ribes.—Mr. Michael reported that he had discovered no *Phytoptus* on the specimens submitted to him.

Basal Disease of Daffodils.—Rev. W. Wilks exhibited specimens of this disease, which Mr. Michael considered as very likely to be the result of the attacks of a mite, *Rhizoglyphus Rolini*. Mixtures of sulphur and softsoap, or of carbolic acid, were recommended as likely to be beneficial.

Sugarcane Attacked by Boring Insect.—Mr. Blandford showed specimens of Cane attacked by a boring beetle at the nodes. The direction of the perforation was from within outward.

Birch Bark.—Mr. Burbidge sent specimens with the following letter:—

"I beg to send for the inspection and consideration of your Committee some fragments just taken fresh from the trunks of *Betula papyracea*, reared here from seeds kindly sent from the Royal Gardens, Kew, some ten or twelve years ago. It can be written upon with ease with an ordinary pen and ink, as these examples will show. Its texture is very soft and fine, except here and there, where transverse corky lenticels occur. It would be interesting to know the part this exquisitely finely textured bark plays in the economy of the tree, as contrasted with other barks of a more-rough and corky texture, such as say *Quercus suber* or 'Cork Oak.' Both are, no doubt, identical in their being practically impervious to water, either from within outwards or *vice versa*. As a contrast I send a small piece of stem of *Arauja* (*Schubertia*), or *Physanthus grandiflorus*, with netted, rugose, corky bark, arranged around a stem quite green, and doubtless rich in chlorophyll.

Ginkgo Seeds.—I also enclose seedlings of the 'Maidenhair' or 'Ginkgo Tree' of China and Japan (= *Ginkgo biloba*). Dr. E. P. Wright, M.D., F.L.S., Professor of Botany in the University of Dublin, saw the ripe fruits in one of the public gardens at Rome last autumn, a crop of golden Plum-like fruits amongst the Maidenhair-like leaves, and succeeded in obtaining a supply of the seeds through H.M. Ambassador, the Marquess of Dufferin and Ava.

"I am enabled by the courtesy of Dr. Wright to send a few of these fresh seeds for the inspection of the Committee, as well as seedlings raised from the same, sown on December 8th, 1891, in a mean temperature of 60° Fahr. The fleshy covering of these seeds, analogous to that of our native Yewberry, is edible, and is used as dessert in China and Japan according to Siebold and other authors. It is well known that this tree rarely if ever fruits in Britain, a fact perhaps due to the dioecious character.

"These seeds also illustrate a very interesting physiological fact mentioned by Sachs ('Text Book,' p. 665). 'If the temperature is sufficiently high, the green colouring substance (chlorophyll) is found in the cotyledons of Conifers, and in the leaves of Ferns in complete darkness, as well as under the influence of light.'

"I am by no means certain that Ferns and Conifer seeds alone possess this peculiarity, which is common to other seeds, and notably to those of *Acer pseudo-platanus*, the common Sycamore, the Sea-kale, *Crambe maritima*, and possibly others which I have not examined.

Doryanthes excelsa.—It may be of interest to state that the Spear Lily of New South Wales (= *Doryanthes excelsa*) is just now opening its flowers in this garden, the crimson Lily-like flowers being congested on a scape 10 feet high and 2 inches in diameter."

Other specimens sent by Mr. Burbidge comprised *Candollea cuneiformis*, *Erythronium Hartwegi*, *Asparagus plumosus* in flower, *Masdevallia chimæra* var. *Roetzli*, *Arisæma ringens*, *Stapelia deflexa* in fruit, *Coccoloba platycladon*, *Acer macrophyllum* (buds), *Begonia corallina*.

LIVERPOOL HORTICULTURAL ASSOCIATION.

LAST week the fifth meeting of the session was held in the lecture room of the Museum, William Brown Street, Liverpool. Mr. T. White presided, and there was a good attendance. The paper was on "The Phalænopsis," by Mr. A. Smith, gardener to D. de Yborronds, Esq., Prince's Park, Liverpool. Mr. Smith is known as a most successful cultivator. He first dwelt upon the importation and the subsequent treatment to establish specimens. Potting and crocking was recommended, and a temperature of 65° to 70° for winter, and 85° to 90° for summer, with little or no shading, a liberal supply of water whilst

making growth, also a judicious application of liquid manure, the troughs being filled with the same for evaporation, watering between 9 and 10 A.M., and again at 4 P.M. if required during the summer time. He also spoke in a lucid manner of the ill effects accruing from allowing the plants to seed. He remarked that two years ago he had a most healthy plant which he allowed to carry a seed pod, but whilst watching its development he noticed the plant getting weaker and weaker, until he was convinced that the only way to save his plant was to remove it, but it left the plant in a most feeble condition, from which it has never recovered. Mr. Glover, gardener to Sir A. B. Walker, Bart., whilst generally agreeing with Mr. Smith's paper, could not quite coincide in the matter of shading. He thought a shading was beneficial to the well-being of the plant. Mr. A. R. Cox, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, also agreed with Mr. Glover, and went on to remark on the great importance of house and situation. Mr. R. W. Ker, Aigburth Nursery, stated that some twenty years ago at Woolton he remembered some excellent plants being grown in rather a quaint structure, having a dark gable end. A new house was erected for them, and the plants never did so well afterwards. He dwelt for some time on the natural habitat of the Phalænopsis, and the great benefit they derived from the decaying matter of the forest. This opened the question of liquid manure, Mr. Sargent stating that when at Wyncote under Mr. Mease they damped every portion of the paths and stages with liquid manure late in the evening. Votes of thanks to Mr. Smith for his admirable paper, and to the Chairman for presiding, brought the meeting to a close.—R. P. R.

CRYSTAL PALACE SHOW.

THE annual spring Show at Sydenham was held on Saturday last, March 26th, and proved in many respects similar to that held by the Royal Botanic Society on the preceding Wednesday in the same week. The exhibits were arranged in the centre transept, the only space that could be spared from the great electrical Exhibition. They were effectively disposed on tables, with the groups at the corners, and these, with the non-competing collections, formed the most conspicuous portion of the Show.

Messrs. J. Laing & Sons, Forest Hill, won the premier honours for the most tastefully arranged group of plants, Crotons, Palms, Ferns, and Caladiums constituting the foundation of the group, with numerous Orchids and other flowering plants. Mr. H. James and Mr. C. Nunn followed in the order named, both with effective groups. The best thirty-six Hyacinths came from Messrs. H. Williams & Son, Fortis Green, Finchley, the plants being similar to those which took the honours at Regent's Park. Mr. Shoesmith, gardener to M. Hodgson, Esq., Shirley, was second, also with good specimens. Messrs. Williams were again first for twenty-four Narcissi; but Messrs. Paul & Son, Cheshunt, had the best twelve Amaryllises of fine varieties. Azaleas were fairly well shown by Messrs. C. Nunn, R. Wells; Cyclamens by Mr. D. Phillips; and in the amateurs' classes for bulbs Mr. Shoesmith was the most successful with Hyacinths, Tulips, and Narcissi. Mr. J. Ford had some handsome Cinerarias, and gained two leading prizes.

Amongst the non-competing exhibits Messrs. B. S. Williams and Son, Upper Holloway, had a magnificent group of *Clivias*, *Azaleas*, *Amaryllises*, and other plants; Mr. T. S. Ware, Tottenham, sent a group of spring flowers; Messrs. Cutbush & Son, Highgate, showed a beautiful group of greenhouse plants; Messrs. Paul & Son, Cheshunt, had collections of *Roses* and *Amaryllises*; Messrs. W. Paul & Son, Waltham Cross, had *Camellias* and *Roses* in large numbers and choice varieties; Messrs. J. Peed & Son, Roupell Park Nurseries, staged a tasteful group of flowering and fine-foliage plants; and Cyclamens came from Mr. J. Odell and the St. George's Nursery Company; while handsome Lilies of the Valley formed an attractive group from Mr. J. Jannoch, Dersingham, Norfolk.



HARDY FRUIT GARDEN.

PROTECTING FRUIT BLOSSOM.—The cold weather of the early part of March has had a beneficial effect on fruit trees generally in retarding the advance of blossom buds—a state of things which fruit growers contemplate with satisfaction. Now, however, under the influence of warm sunny mornings the blossoms of Peaches, Nectarines, and Apricots are rapidly swelling. In all districts, therefore, where frosts or rough winds are expected recourse must be had to some means of protection in order to preserve the flowers from injury during the continuance of unfavourable weather. As a rule a slight dry frost will do no harm to hardy healthy organs of well-formed flowers, produced on properly ripened wood; but when frost is accompanied with moisture or beating rains then the hardiest of flowers are apt to suffer, and the weaker to succumb before fertilisation is effected. Protection under such circumstances is imperative if the flowers have expanded. It is often found

advisable to use protective material prior to flowering, in order to retard as long as possible advancing buds. This need only be done on warm sunny mornings by drawing down blinds of tiffany or canvas in front of the trees. When the flowers have attained to the point of opening further efforts at retarding are useless, and opposite conditions must be afforded, admitting all the light and air possible on suitable occasions, with protection from frost, wet, and cold winds. Do not destroy the hardiness of the flowers by too dense coverings, or retain material over the trees too long.

MEANS OF PROTECTION.—Wide coping boards fixed on the top of walls at an angle sufficient to carry off wet easily, and projecting far enough to admit the securing of material to them without touching the trees when suspended, are necessary. Feather-edge boards are among the best, as they afford an opportunity for confined air to escape. Protecting material of a very heavy nature is undesirable. In many naturally sheltered and warm districts fish netting answers well. If a quantity can be procured use it folded double or treble. For late trees in cool positions it is often sufficient to ward off suddenly sharp frosts. It is easily fixed, requires little attachment at the base to keep it in position by reason of its weight, and can remain constantly suspended before the trees, just securing it here and there along the bottom edge so that it hangs tightly and stationary. In cold exposed districts nothing less than tiffany, cotton, scrim canvas, or frigi domo will effectively protect. Whatever of this nature is employed must have rings attached to the material for running up rods or wires fixed on the edge of the coping boards. This admits of easy removal to one side for the inlet of light and air.

DISBUDDING FLOWERS OF PEACHES, APRICOTS AND NECTARINES.—These stone fruits usually produce more flowers than can possibly set, or if they do so, swell forward to a safe size before thinning of the young fruit is necessary. It follows, therefore, that some systematic disbudding of the overplus is necessary, not only to relieve the trees but to strengthen those left. Remove all misplaced buds such as those at the back or reverse side of shoots, as well as the weakest of double flower buds and imperfectly formed single buds wherever situated. In doing this, however, care must be taken not to dislodge wood buds, especially those near the base of shoots.

PROTECTING FRUIT BUDS FROM BIRDS.—Sparrows, bullfinches, linnets, chaffinches, skylarks and goldfinches are troublesome to fruit buds. The two first named are, perhaps, the most numerous and do the greatest amount of damage. They attack wall trees as well as standard bushes and others. Netting trees over where it can easily be accomplished secures them against attacks. Fish netting or galvanised wire netting may be used. Fish netting is the best for walls where Plums, Cherries and Pears are planted. Large standards cannot be very well protected.

FRUIT FORCING.

VINES.—*Succession Houses.*—Stopping, and tying the shoots will need attention. Work of this kind must not be allowed to fall into arrears, as large reductions of foliage are highly pernicious, and growths neglected in tying are apt to snap when brought down. Where the space is somewhat restricted stop two joints beyond the bunch, pinching the laterals to one leaf; but where there is space for extension allow four or five joints beyond the fruit, permitting the laterals to extend so as to insure an even spread of foliage having exposure to light, avoiding overcrowding. After the available space is occupied keep the growths stopped to one joint, as large reductions of foliage at one time are very prejudicial. Supply water or liquid manure to the inside border in a tepid state, and ventilate freely on all favourable occasions, particularly early in the day, avoiding cold draughts, and closing early with plenty of moisture.

Late House.—Late Grapes started as previously advised will be swelling their buds. Syringe the Vines freely twice daily, and every surface ought to be damped in the morning and at closing time, so as to insure a good break by a genial condition of the atmosphere, closing the house with plenty of moisture at 75°. Young canes may need depressing as the sap rushes to the upper part and the lower eyes break unevenly, even young rods require to be brought into a horizontal position for a time. Inside borders will need repeated waterings to bring them into a thoroughly moist condition, but avoid needless waterings. Outside borders must have sufficient protective material to prevent chill from frost and snow. A few inches thickness of stable litter freed of the rougher portions of straw is sufficient, and being lumpy it allows the free access of air, rain, and the sun's warmth. Avoid thick mulchings and material likely to become a close soapy mass.

Starting late varieties of Grapes must not be further delayed, as these require a longer period to grow and perfect their fruit than other varieties, and if given more time in the best part of the season they produce good sized and highly finished fruit, and such as keeps sound longest. Maintain a moist atmosphere by damping the borders, floors and walls every evening, syringing the Vines two or three times a day, but allow them to become dry at least once in the twenty-four hours. The inside borders may be covered with a little fresh stable litter, adding a few fresh horse droppings occasionally to supply ammonia. A night temperature of 50° to 55° and 65° by day from sun heat is suitable.

FIGS.—*Earliest Forced Trees in Pots.*—Early Violet, Tresfer, and other small very early varieties are advanced toward ripening, and the foliage must be kept dry as soon as the fruits show signs of changing. Less water must also be given to the roots, and liquid manure need not

be applied, as too liberal feeding in the ripening stages prejudices the quality of the Figs. Water, however, should be furnished to the roots so as to maintain the foliage in health. Trees swelling their fruits need full supplies of water and liquid manure until ripening commences, when a circulation of warm air will be necessary to secure well ripened high quality fruit. The temperature will need to be maintained at 60° to 65° at night, 70° to 75° by day from fire heat, 80° to 85° with sun, admitting air or increasing it from 75°, closing the house early so as to advance 5° to 10° afterwards.

Planted-out Trees.—These very often grow too luxuriantly, and are frequently trained to walls at a considerable distance from the glass, so that they produce wood instead of fruit. This can only be overcome by lifting and restricting the roots and training the growths thinly. They cannot be too near the glass. When the foliage has abundance of light and the roots are plentiful and active in borders of limited area the trees require liberal feeding. This is easily effected through the surface roots, which are encouraged by a mulching of partially decayed lumpy manure, and this if kept moist will be permeated with roots by the time the most support is needed to perfect the crop. Fig trees will take almost any amount of liquid manure without prejudice to the crop, and it is astonishing what heavy crops the trees will carry with the roots confined to narrow borders.

MELONS.—The change in the weather has done wonders in solidifying the growths in the earliest plants, which were becoming thin in the leaves and slender in the growth during the recent spell of wintry weather, and they are setting fruits on the first laterals. When in flower and during the setting period water should only be given to prevent flagging, and the atmosphere must be kept drier, with an increase of temperature of about 5°, a circulation of warm air conducing to a good set, and if necessary a little air should be admitted at night to prevent the deposition of moisture on the flowers. Fertilise the blossoms every day, pinching each growth at the same time one joint beyond the fruit. When the fruits are set and about the size of a bantam's egg give a thorough watering with tepid water or weak liquid manure, having the soil for earthing the roots warmed, for if the roots are chilled by cold water or soil the fruits turn yellow instead of swelling. In a day or two after the watering top-dress with rich, turfy, rather strong loam previously warmed, pressing it down somewhat firmly, and again supply water. Stop the subsequent growths to one or two leaves, and avoid overcrowding by removing superfluous growths. The bottom heat should be kept between 80° and 85°; this assists the swelling of the fruits, and speedy growth with early ripening is a great point in growing the first crop of Melons. The night temperature should be kept at 65° to 70°, 70° to 75° by day from artificial heat, ventilating from that point, but allowing an advance to 85° or 90°, closing at 85° sufficiently early to rise to 90° or 100°. Syringe moderately about 3 P.M. on bright and warm afternoons, or soon after mid-day when the air is sharp. Damp the floor in the morning, and keep the evaporating troughs charged with liquid manure; or failing these sprinkle the floor and other surfaces (not the plants) with stable drainings diluted with five times the bulk of water, unless sufficiently diluted by washings running into the tank. Liquid manure will be needed by plants in restricted borders, and a mulching of rather lumpy and sweet manure encourages roots and affords support. Water, liquid manure, and mulching must always be applied equal to or in advance of the temperature of the house.

Later plants will need the growths trained regularly, removing the laterals on the stem to the trellis, then rubbing off every alternate lateral directly they are perceived, leaving the rest on the right and left of the main stem, pinching the point out of the primary stem after it has extended two-thirds of the required distance. Increase the supply of water as the days lengthen, but avoid making the soil too wet, as that hinders root action; and secure a genial condition of the atmosphere by damping in the morning and lightly syringing on fine afternoons.

Sow seed to raise plants for occupying small houses or pits as they become cleared of bedding plants, keeping the seedlings sturdy, and not allowing them to become very much root-bound. In pits and frames a bottom heat of 80° should be maintained for plants that are growing freely; newly made beds will have a bottom heat of 90°, which is safe for planting out, and as the heat declines it can be increased by renewing the linings, employing thick night coverings over the lights.

CUCUMBERS.—The sun has caused plants that of necessity were kept close during the late severe weather to flag, and therefore light shading is often desirable for a couple of hours at mid-day when the sun is bright. Plants in bearing will need liquid manure once or twice a week and the roots earthing occasionally. Care must be taken not to apply the liquid too strong, and if horse droppings are used as a mulch they must be well sweetened before being introduced to the house, or the ammonia will injure the foliage. Old plants that have been in bearing for some time should have the exhausted soil removed with a small handfork, not injuring the roots, adding a rich lumpy compost previously warmed. Exhausted growths should be cut out and young bearing shoots encouraged. Worms sometimes become troublesome in old beds, and are best expelled with lime water, made by dissolving a peck of lime in thirty gallons of water, or soot, a peck to seventy gallons of water. The lime acts well on the organic matter, and the soot is a good fertiliser, but the clear water only should be used, letting the respective mixtures stand forty-eight hours after stirring. Canker in the stems may be subdued by rubbing quicklime into the affected parts, repeating as necessary, and avoid wetting the stems. Damp the

floors and other surfaces in the morning and evening, and syringe the plants lightly on fine afternoons.

Attend to stopping and regulating the growths not less frequently than once a week. To keep the plants in steady progress and secure straight, tender, crisp, well flavoured fruit a temperature of 65° to 70° at night, 70° to 75° by day artificially, 80° to 85° with sun, closing sufficiently early to run to 90° or 100°, with abundance of atmospheric moisture will be suitable. Ventilate early but moderately, avoiding sudden changes of temperature, pernicious cutting winds, and currents of cold air, cripple the foliage and deform the fruit.

In pits and frames the necessary heat should be maintained by renewing the linings, taking care to keep rank steam out of the frames. Train the growths rather thinly, and stop them one or two joints beyond the show of fruit. Supply fresh warmed soil to the hillocks or ridges as the roots extend, and be careful in the application of water. Admit a little air early, so as to dry the foliage before the sun acts powerfully upon it. Keep the temperature through the day at 80° to 90° from sun, and close early in the afternoon, no harm accruing if the temperature rise to 90° to 95°, provided there is no rank steam.

STRAWBERRIES IN POTS.—The weather has been very unfavourable to plants in flower until lately. Mildew flourishes on plants that are chilled on the one hand and confined on the other, and sulphur is much less effective against it in winter than in summer; therefore a change in the weather has proved very acceptable. In dull weather it is well to shake the flowers occasionally when the pollen is ripe, and to remove the smallest and least desirable, leaving the boldest, which are usually the first to expand, and they afford the largest fruit generally. Thin the fruits after they are set, leaving the number on each plant it is calculated to mature well. Colour and size are the chief points in a forced Strawberry, and a few good fruits are better than many small. The plants should be examined twice a day, and any needing a supply of water must have it liberally, affording liquid manure two or three times a week when the fruit is swelling. Steady progressive growth is most favourable for Strawberries until after flowering, then they swell better in a high temperature, and moist but not very close atmosphere. In the later plants the trusses are coming strong, but aphides also are making their appearance, and should be destroyed by timely fumigation.

PLANT HOUSES.

Azaleas.—As these go out of flower pick off the seed pods, and place the plants where they can be assisted by gentle heat and moisture to make their growth. Those which flowered early and have started into growth may be repotted if they need it. We have found loam and leaf mould in equal proportions with the addition of coarse sand as good as peat for growing Azaleas. The soil should be pressed firmly, so that water will not pass through the new and leave the old balls of soil dry. Plants required for late flowering should, if practicable, be placed in a house with a north aspect. Careful watering is essential, and the syringe may also be used freely to keep thrips in check; if any are seen the best method of destroying them is a thorough application of weak tobacco water.

Erica hyemalis.—If the plants are not repotted the work should be done at once. Do not give them a large shift, and use peat and sand as a compost. In potting do not disturb the roots further than is necessary in the removal of the drainage. If the new soil is pressed firmly the roots will soon take possession of it. Where convenient place the plants in a frame, where they can stand on a base of ashes and be safe from frost. The plants may be syringed early on fine afternoons and the frame closed.

Camellias.—Those which have flowered may be kept close and warm to promote free growth. They enjoy much water at the roots, and the syringe should be used freely. While growing these plants are benefited by shade, which should be gradually removed, so that they can be fully exposed by the time the foliage is developed. This is necessary to ripen the wood and the production of buds. Plants that need repotting will grow freely in good fibry loam, with one-seventh of cow manure and sand. Those in large pots and tubs may be top-dressed with rich material, while those planted out if they are weakly may be supplied with stimulants.

Greenhouse Rhododendrons.—These may be grown with Camellias during the period of growth, and then fully exposed to the sun. The way in which they flower another year entirely depends upon the amount of light and sunshine they receive during the growing season. Any plants that need larger pots should be afforded them when flowering ceases. R. Gibsoni and Princess Royal are excellent for planting out to cover a wall, and when established they flower profusely. The latter has been furnishing flowers since last October. For shallow glasses and table decoration the flowers are invaluable. The plants grow well in peat and sand.

Daphne indica.—These plants are frequently destroyed by trying to push them forward in a close atmosphere. After they have flowered place them in frames where they will enjoy a cool base and plenty of air. Apply water carefully, but do not allow them to become dry.

Epacris.—Cut back all that have done flowering, and keep them slightly closer until they break into growth, when they may be repotted if they need it. Careful watering for some time is necessary after repotting until the plants are rooting freely in the new soil. Those that were potted some time ago and now growing freely should have plenty of air, so that a firm but sturdy growth will be made.

THE BEE-KEEPER.

APIARIAN NOTES.

ACCURACY IN BEE MATTERS.

In the *Journal of Horticulture* of the 10th of March, page 189, your correspondent, A. H. B. K., appears to question a statement contained in an extract from "Bees," by Mr. Frank Benton. There is no person so well qualified as he, Mr. F. Benton, is, from the very large experience he has had with foreign races of bees in their native country, to give an opinion upon the subject. He is an experienced bee-master, and not likely to make a mistake. He writes as follows:—

NORTHERN AFRICAN BEES.

"There has been established in Tunis, the site of ancient Carthage, an apiary of forty hives, to be conducted on modern methods. The name chosen is 'The Kassartyr Apiary,' the estate to which it adds a pleasing feature being known by the name of 'Kassartyr.'" Writing 1885, he says:—"At present the moveable-comb hives are not in suitable condition to take full advantage of the first yield of honey, that from the wild Rosemary blossoms, but some surplus has been obtained, and many combs have been constructed, so that when the Jujube blossoms open next month an excellent harvest may be safely counted upon. The Rosemary yields wonderfully, and, as thousands of acres are covered with its pale blue blossoms during January, February, and March it will be a great dependence."

ROSEMARY HONEY.

"The Kassartyr honey is most excellent in quality. Some of it is quite transparent, very thick, and possesses a pleasing aromatic taste." "Two other apiaries on the same plan are soon to be established in the province, and several enterprising parties are talking of introducing the culture of bees on their estates."

A FEW WORDS ABOUT THE BEES OF TUNIS.

"They are dark, even darker than our common black bees, but, strange to say, possess nearly the qualities of Syrian bees, and show, except in colour, very little resemblance to the black or German bees. Like the Cyprians and Syrians, they are somewhat smaller bodied than are the common bees, adhere very well to the combs when handled, but can be shaken off readily. They are also active, energetic workers, but, unlike Cyprians and Syrians, they are liable at times to fly at one and sting him when he approaches the apiary and yet does not molest the hives. They bear smoke rather better than other Oriental races. Queens show a tinge of bronze colour, and are very prolific. On the whole, the Tunisian bees are not to be despised, even if they are true African colour."

There is, I think, no doubt that the bees which Mr. Hewitt wishes to be called Punic bees, and which Mr. W. F. Kirby said were reared by Mr. John Hewitt from bees imported from Tunis, are none other than the ordinary Tunisian bees which Mr. Frank Benton describes; the queens of which are imported into this country at about the same price as Carniolans and Italians.

THE SEASON OF REST IN NORTH AFRICA.

It is quite true that in January, February, and March, as Mr. F. Benton tells us, a quantity of honey is obtained; but you will see that after the Rosemary honey flow is over, he says, "So that when the Jujube blossoms open next month an excellent harvest may be counted upon." And it is simply "begging the question" to say that the period of our summer is their winter, or as "A. H. B. K." puts it, "That their natural months for rest (for Punic) is our summer, which is their winter." How can the hottest months in the year be a season of rest, when they are constantly fanning to keep down the temperature of the hive to prevent the melting of the combs? All bee-keepers know that when the honey flow ceases and the bees are unable to collect any nectar, breeding ceases also; but this cannot be called their season of rest in the same sense as when we speak of our winters as a season of rest for bees.

MR. KIRBY AND TUNISIAN BEES.

I will now give the report as published in the Transactions of the Entomological Society:—"November 4th, 1891, Dr. David Sharp, M.A., F.R.S., Vice-President, in the chair. Mr. W. F. Kirby exhibited a series of a very dark coloured form of Apis reared by Mr. John Hewitt of Sheffield, from bees imported

from Tunis. He said that Mr. Hewitt proposed to call them 'Punic bees,' and had distributed them under this name, which, if the race be considered sufficiently distinct, might as well be retained for them. They are larger than the black *Apis unicolor*, Latr., of Mauritius and Bourbon, and are almost entirely black, except the legs, which are more or less reddish colour; but there is not a trace of red colouring on the base of the abdomen, which is almost invariably the case in typical specimens of *Apis mellifica*, L. Mr. Kirby stated that Mr. Hewitt had informed him that these bees are remarkable for their peaceable disposition, and their unwillingness to use their stings, and also for the fact that the workers are much more frequently fertile than those of the common house bee, with which, however, these black bees will freely hybridise.

"He further said that Mr. Hewitt had told him that he had made some important original observations on the fertility of workers, which he would be pleased to communicate to the Society."

The above is a verbatim copy of the report printed in the Transactions, part 4, 1891. It will be seen that Mr. Kirby simply repeats what Mr. Hewitt told him, and does not express any opinion of his own. On reference to "Whitakers' Almanack," page 163, I find that Dr. Albert Günther, F.R.S., is the Keeper, Mr. A. G. Butler is the Assistant Keeper, that there are two classes of assistants in addition, and that Wm. Forsell Kirby's name appears as one of these assistants in the zoological department of the Natural History Museum, but not as "Curator."

INTERVIEW WITH MR. W. F. KIRBY.

Mr. Kirby kindly gave me an opportunity of seeing the bees he had received from Mr. Hewitt. Mr. Kirby explained that he had not named them Punic bees, but that it was the practice when specimens are received the name of the sender and the name given to the specimens by him are written under them. Mr. Kirby very frankly said he had nothing to do with bees himself, and that the collection in the students' room, which I saw, were arranged by Mr. Smith.—JOHN M. HOOKER.



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Chemical Preparations (R. T. C.).—We are very much obliged by your kind endeavour to alleviate the "misery of the poor man" referred to.

Asparagus (W. L.).—Your letter was not stamped, and 2d. is due from you to defray postage. On receipt of stamps to that amount the subject will have attention.

A Damp-testing Instrument (W. G. Hoard, Wisconsin).—If you write direct to Mr. F. W. Beck, East Grinstead, Sussex, he will send you the price and particulars of the instrument to which you refer.

Insects on Spray (G. F.).—The fragile box was quite flattened and the contents crushed. The insects appear to be mealy bug, but whatever they are we think an application of spirits of wine will destroy them. Try it with a small soft brush.

Cinerarias (G. Parrant).—Evidently the plants have been well grown, and the rich crimson variety with florets five-eighths of an inch broad is worth perpetuating by suckers. The blue variety is also good, but most of the others, though attractive, are not of noteworthy quality. The Freesia spike referred to in another page is very good indeed.

Camellia Buds not Opening (R. F.).—One or two varieties are prone to form very hard buds, which become sealed, so to say. When Mr. W. Wright was at Cromwell House, Croydon, he found a plant of

that character, and he could only induce the flowers to open by taking off the tips of the buds with a sharp knife the same as cutting off the end of a cigar. If you have any buds still healthy you might try the plan, but it would be useless as applied to such as those you have sent.

Various (William).—Prick out the seedling Lobelias directly they are large enough, and continue to divide the stock plants of named varieties, soft cuttings also striking readily. *Nicotiana affinis* grown thinly from the early stages will flower well in the borders. Cuttings of Iresines and Coleuses strike readily in brisk heat. Sow Phlox Drummondii, and the earliest Stocks may be sown now, as well as Asters, Marigolds and Zinnias. Pansies may be raised now in gentle heat for affording a late display of flowers.

Ground Beetles and Strawberries (J. C.).—Ground beetles rarely feed on the Strawberry fruits, but some weevils prey on the leaves and flower trusses, perforating the former and eating partly through the petioles. The ground beetles are carnivorous, though they may vary their diet with vegetables at certain times, though we have not found ripe fruit similarly attacked. Of course there are some beetles that may prove destructive in certain cases, but, as a rule, they confine their work to the destruction of the gardener's worst enemies, molluscs, centipedes, and grubs.

Sparmannia Leaves Scorched (W. W.).—The leaves have been scorched or injured, an overdose of tobacco smoke, or some other substance used in fumigating the house. The scorching has probably been accelerated by the foliage being damp at the time, or the recent severe weather would tend to render the leaves tender and more susceptible of injury from the fumigation. There is no trace of insect or of "rust" caused by fungi on the leaves. The only means of avoiding such disasters is to use the best material for fumigating, have the foliage dry, and deliver the smoke cool.

Slimy Ponds (J. C.).—It is very common and natural for water remaining still to become foul with Algæ and Confervoideæ in summer. To concrete or asphalt the bottom of the lake would be of no use whatever, as we have seen ponds similarly offensive that were lined entirely with cement, and the only remedy was to keep waterfowl on them. Ducks of various breeds are effective where the water is not very deep, but swans in some cases are necessary, and both, say two of the latter and half a dozen of the former, would be as pleasing to the eye as useful in keeping the water free from Conferva.

Waiting for Information (W. G. C.).—Though you are neither quite accurate in the quotation, nor the author of it, yet you will have seen that what you wanted has come by waiting. We do not for a moment believe that the best Chrysanthemum growers desire to "keep their methods in the dark till November." On the contrary, really able men are the most ready of all others to impart information; it is those who know comparatively little that can least afford to let slip a little of that little they know. Perhaps you had better make a note of this, and you may yet be enrolled in the noble army of teachers.

The Winter of 1860-1861 (W. Smith).—Unusual pressure on our pages prevented your letter being attended to last week. As you have no records, and your memory does not enable you to mention the frost register, the publication of your letter would not afford the needed information. Like you, we well remember the unusual severity of the frost on Christmas Eve, 1860, and we have a clear recollection of the thermometer registering 7° below zero. There were still lower records, as also there were in January, 1881, but the destruction to shrub life was, we think, greater during the former memorable frost.

Verbenas (W. I. G.).—Your stock plants must be kept away from the hot-water pipes, or the cuttings will soon be too hard to strike. Soft growths inserted in boxes of sandy soil, covered with glass, in a warm house or pit, will root in a week. Remove the glass then, and do not stop the plants till the tops are large enough to make into other cuttings. Seedlings should be pricked off not less than 3 inches apart in boxes of good loamy soil, and the tops of these may also be struck. *Verbena venosa* can be raised from seed, but is best propagated by means of root cuttings with two joints inserted closely in boxes and placed in heat.

Moveable Stages for Greenhouse (A. G.).—Corrugated zinc roofing is extensively used in some places for stages and answers remarkably well. The sheets are not placed flush with the wall or pit sides, but a little space is left for heat to pass up; but it is better to let the "roofing" extend to the walls, and have a hot-water pipe (2 inch) under the roof at the base of the rafters. These shelves are easily put up and quickly taken down, and they answer better than wood staging, and are much more durable. Some persons grow Cucumbers in summer and Mushrooms in winter in the same structures, but the structures can be utilised for any purpose for which they are suitable, and for the produce of which there exists a demand.

Destroying Woodlice (Idem).—There is no better plan than to get some pieces of old boards, sprinkle one laid on the floor or bed with a little oatmeal or crumbs of a floury boiled Potato, and another board of the same size placed upon it, with a small stone at one or both ends, so as to keep the board sufficiently far from the lower one as to admit the woodlice. The vermin will soon find out the food, when it is a matter only of removing the pebbles and crushing the woodlice between the boards. Some persons use the old boards only, which, partly decayed, attract the woodlice, and they are swept into boiling water,

or it can be poured on the boards. We have seen thousands destroyed in manner indicated.

Bulbs after Flowering—Tuberoses (F. M.).—You had better keep the Hyacinths, Tulips, and Narcissus as long in the greenhouse after flowering as you can, so as to encourage the foliage, then place them for two or three weeks in your cold house, then plant out of doors, and shade and protect the foliage a little at first. The Tulips if so treated will bloom next season, and many of the Narcissus will force, but the Hyacinths would be better if planted in a flower bed instead of being forced again. Everything depends on giving no check to the foliage until it naturally turns yellow. Your Tuberoses would have done better if treated as Hyacinths. It was wrong to keep the soil so dry. If the pots had been covered over the dryness would have been prevented. If you could plunge the pots in a very slight hotbed, say about 65° to 70°, and cover the bulbs 2 or 3 inches deep, we have no doubt the bulbs would start strongly if they are in good condition.

Keeping Cats from Garden (Suburban Amateur).—We have seen no better plan than that described by Mr. W. Power in *Garden-Work* a few years ago. He wrote:—"It may interest some of your readers to know how I have succeeded in banishing the feline pest. I have read many methods of dealing with them, but have met with none so effectual as my own. Mine is an ordinary cottage garden, with a wooden fence about 7 feet high to the back forecourt, and thence an open paling to the end which skirts the L. B. & S. C. Railway. The Company have erected a fence of old sleepers along their boundary. The wooden

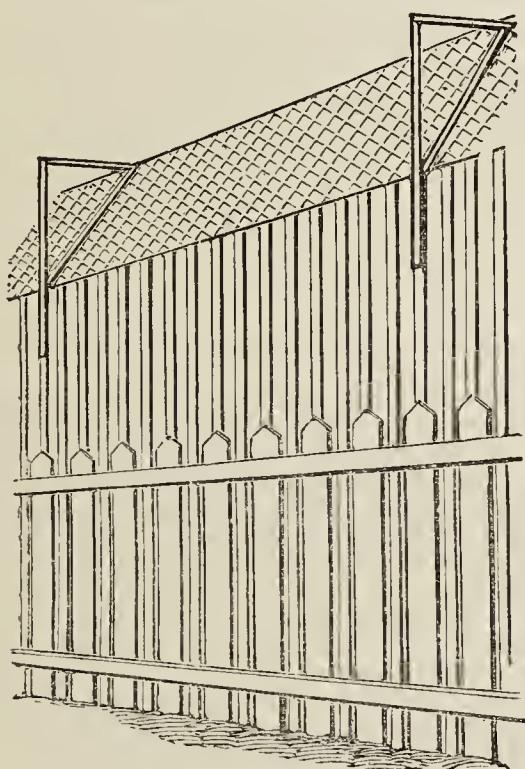


FIG. 41.

palings on each side of my garden were originally about 4 feet high, but my predecessor, with a view no doubt to keeping out Tabby and Tommy, made the fence 3 feet higher with lattice laths, also nailing a lath between each rail. But the cats mounted this and held their orgies all the more, as if to mark their contempt for such paltry obstacles. But I have been one too many for them. I bought half a dozen pantile laths, cut them up to form brackets, and fixed them at intervals of 8 feet all round the top of the fence. I then purchased a roll of 2-inch mesh wire netting, 18 inches wide, and fixed it to the inclined side of the brackets, thus forming a sloping network round the entire garden, and I can safely say that it is an utter impossibility for a cat to enter my garden. Being set on the slant is the secret of it. Of course I have taken care that all other openings have been blocked up. The cost with me has been very little, but with larger gardens of course it would be more. I paid 1s. for the laths, 4s. 3d. for the roll of wire (50 yards), and 3d. nails, 5s. 6d. altogether, which I do not in the least begrudge, as I have obtained the result I desired." The engraving (fig. 41) represents the idea suggested.

Stopping Vine Shoots (Lady Gardener).—The shoots may be stopped when the leaf at the joint at which the stopping is to take place is about the size of a shilling, and not later than when it is a quarter the size it will ultimately attain, and the points should be taken off just above that joint. If the space is limited stop one or two joints beyond the bunch, and pinch the laterals to one leaf as growth is made; but where there is room three or more joints may be left above the show of fruit, and the laterals may be allowed to extend until the space is occupied with foliage. No more growth, however, should be encouraged than can have full exposure to light. It does not answer to allow the shoots to run on and then cut them back to one or two joints above the bunches, because it gives a check unfavourable to the crop, whereas that requires steady supplies of sap. A temperature of 55° at night is suitable until the bunches show, when it should be raised to 60° at night, and 65° by day from fire heat, with 10° to 15° rise from sun heat.

Average Longevity of Peach and Nectarine Trees in Pots (W. G. S.).—A great deal depends upon the variety and the management, also cropping of trees. We have seen trees complete wrecks from the latter cause—overcropping—within seven years; others with beautiful heads at fifteen years; and some quite healthy and fruitful at twenty-four years old; but the heads had been renewed from time to time by cutting away worn-out branches and encouraging young, so as to keep them well furnished with healthy wood, for without young wood it is not possible to have fine fruit. What are called spurs are frequently young shoots pinched, and to maintain a supply of these, old growths require to be cut away yearly, so as to keep the trees well furnished with bearing wood right down to the base of the branches. This renewal of the heads, and the equally important renovation of the roots, keeps the trees healthy and fruitful indefinitely. Some have been grown in pots over forty years, but how many times the heads were renewed in that time, and how often they failed to produce full crops, we do not know. Fruit trees vary in their growth, even when not overcropped, but in the size of pot you mention, and with fair crops, the trees may last thirty years in profitable production.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. Law.)—The shrub is *Cornus mascula*. (C. P., Durham.)—*Dendrobium Pierardi*. (A. C.)—The flowers you send are florists' varieties which have originated from seed, not distinct species, and, therefore, not within our conditions for naming. Probably a nurseryman who grows a good collection might favour you with the names of the varieties.

COVENT GARDEN MARKET.—MARCH 30TH.

Business steady, with supplies, though moderate, quite equal to the demand.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, 1-sieve	1	0	to	4	0	Lemons, case	15	0	to 2, 0
Apples, Canada and Nova Scotia, per barrel	12	0	25	0	Oranges, per 100	4	0	9	0
Cobs, Kent, per 100 lbs. ..	0	0	45	0	St. Michael Pines, each ..	3	0	6	0
Grapes, per lb.	2	6	4	0	Strawberries, per lb. ..	8	0	12	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	9	to	2	0	Mustard and Cress, punnet	0	2	to 0 0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Canliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	4	0	6	0	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	2	0	to	5	0	Mignonette, 12 bunches ..	1	6	to 3 0
Bonvardias, bunch	0	6	1	0	Mimosa or Acacia (French)				
Carnations, 12 blooms ..	2	0	3	0	per bunch	1	6	2	0
Carnations, Malmaison, 12 blooms	4	0	8	0	Narciss (French) dozen bunches	2	0	4	0
Cineraria, dozen bunches ..	6	0	9	0	Narciss (various), Scilly dozen bunches	2	0	4	0
Cyclamen, dozen blooms ..	0	3	0	6	Pelargoniums, 12 bunches	9	0	12	0
Daffodils (double), dozen bunches	2	0	4	0	scarlet, 12 bunches ..	4	0	6	0
Daffodils (single), doz. bnch.	3	0	6	0	Primula (double) 12 sprays	0	6	0	9
Encharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	6	3	0
Euphorbia jacquiniæflora dozen sprays	2	0	3	0	Red, per doz. blooms ..	4	0	6	0
Freesia, dozen bunches ..	2	0	4	0	Tea, white, dozen	1	0	3	0
Gardenias, per dozen	3	0	6	0	Yellow, dozen	2	6	6	0
Hyacinths, dozen spikes ..	3	0	4	0	Snowdrops, dozen bunches	1	6	2	0
Lilium longiflorum 12 blooms	5	0	8	0	Tuberoses, 12 blooms ..	1	0	2	0
Lilium (various) dozen blooms	2	0	4	0	Tulips, dozen blooms ..	0	6	1	0
Lily of the Valley, dozen sprays	0	6	0	10	White Lilac (French) per bunch	4	0	6	0
Maidenhair Fern, dozen bunches	6	0	12	0	Violet Parme, French behs.	2	0	3	0
Marguerites, 12 bunches ..	3	0	4	0	Czar	1	0	2	0
					small bunches	1	6	2	0
					English, doz. bunch.	1	0	1	6
					Wallflowers (foreign), dozen bunches	2	0	3	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each ..	2	0	to 10 0
Azalea, per plant	2	0	3	0	Genista, per dozen	9	0	12	0
Cineraria, per dozen	8	0	10	0	Hyacinths, per dozen	6	0	9	0
Cyclamen, per dozen	9	0	18	0	Lily of the Valley, per pot	1	0	1	6
Daffodils, per dozen	9	0	12	0	Lycopodiums, per dozen ..	3	0	4	0
Dracena terminalis, dozen	14	0	42	0	Marguerite Daisy, dozen ..	6	0	14	0
viridis, dozen	12	0	24	0	Myrtles, dozen	6	0	9	0
Erica various, per dozen ..	9	0	12	0	Palms, in var., each	1	0	21	0
hyemalis, dozen	12	0	18	0	(specimens)	21	0	63	0
Eunymus, var., dozen	6	0	18	0	Pelargoniums, scarlet, doz.	4	0	6	0
Evergreens, in var., dozen	6	0	24	0	Solanum, per dozen	9	0	12	0
Ferns, in variety, dozen ..	4	0	18	0	Spiraea, per dozen	8	0	12	0
Ficus elastica, each	1	6	7	0	Tulips, dozen pots	6	0	8	0



GREEN CROPS.

AN admission of ignorance from a farmer is so rare that a recent instance of it may be mentioned as affording proof of the existence of the wide field for technical education which will be opened when once the tough crust of prejudice is broken through. We were discussing ways and means with a dairy farmer who had complained—and justly so—of the poverty of means of shelter on his holding. This gave rise to the question of auxiliary green crops. He at once said he had often thought how much better he might manage if, instead of having all his land down to grass, he could have about twenty acres of it under the plough. We agreed with him, and were led on into talking of the especial value of such crops as Rape, cattle Cabbage, Kale, Rye, Italian Rye Grass, Tares, Winter Oats, and Green Maize. He had never even heard of Green Maize as a prime fodder plant for late summer and early autumn use, and was apparently ignorant of the value of Rye and Winter Oats for early folding.

To all who have arable land we say now, Do not lock up the whole of it in the production of one or two crops, but keep mixed farming always well in view, so as to be ready for any emergency which may arise; and before finishing the spring sowings consider if you have enough land in reserve, or from which crops will be cleared in time for the Maize, which is sown early in June. This is a crop which is very susceptible of injury from late spring or early autumn frosts. The land should be well tilled for it, and abundantly manured, to secure speedy germination and vigorous growth. Once get the plant above the surface, and growing freely in such soil, and it is practically safe, but till then it has to be watched constantly during daylight, or the rooks are quite certain to steal much of the seed. What a boon is such a crop in a drought! Its big succulent stems and tender green leaves are greedily eaten by cows and store cattle. In reply to a question about the possibility of preserving it for winter, we described the process of passing it through the chaff-cutter and ensilage, but had to admit we had never been able to save any of it for such a useful purpose. Wherever sewage is available its growth is wonderfully vigorous, affording pleasing evidence of the value of fertile moisture as plant food.

Graziers who have a few acres of arable land complain that it absorbs too much of the manure, and "robs the pasture." When they, or rather generations to come, realise the full value of chemical manure, and the application of at least a full annual dressing of it to the whole of the land becomes customary, there will be an end of such nonsense. Quite useless will it be for even a very small proportion of a dairy farm to be broken up if its cultivation is not to be thorough. Before advising such a useful concession, we should ascertain the condition of the pasture; it it was poor, then depend upon it the arable land would be poor also, and the tenant would derive very little good from the corn, roots, or green crops grown upon it. Why is it that the manure bill of an exceptionally prosperous farmer is invariably so high? Simply because nothing but full crops satisfy him, and experience has shown him that he must give as well as take, that he must replenish Nature's storehouse—the soil—with fertility if he would have them. Richly is he rewarded; he prospers where other men fail, for his cropping is as sensible as his use of manure. He is worthy of every reasonable concession from his landlord; he has them, because it is understood that he will use them right.

While according full recognition to the value to a dairy farmer of the green crops enumerated, we cannot ignore the fact of the

general poverty of pasture. Go where one will in winter there is the same brown hue upon it which indicates poverty of soil so clearly. Taking as it does the chief place among green crops, it is surely worthy of our best care, and yet anything like pasture cultivation is a rarity. At best it receives but a moderate dressing of farmyard manure every second or third year, and is generally in a state of semi-exhaustion. We have no hesitation in expressing our conviction that the produce of permanent pasture throughout the country might be doubled under a system of intelligent cultivation, the basis of which is well-drained porous soil, nutritious sorts of grass and Clover, annual dressings of chemical manure, judicious sheep folding. Regular systematic practice is what is wanted; our meadows would then indeed be "with verdure clad" throughout the year, for growth would be free and abundant, even early in spring and late in autumn. At midwinter, too, there would be none of that brown barren aspect which now so disfigures them, telling only too plainly of negligence, carelessness, or lack of knowledge.

WORK ON THE HOME FARM.

Since the change to mild open weather the seed drills have been kept steadily at work. Never was there a better seed bed, and though Lent corn is being sown late, speedy germination and brisk growth is now a certainty. There are still heavy arrears of ploughing, but much of the land has been frozen repeatedly to a depth of several inches, so that the ploughing is lighter than usual, and on mixed soil sowing follows at once. Any top-dressing of Wheat should be done forthwith to induce robust growth, most of the Wheat plant being very backward. A hundredweight per acre of nitrate of soda will set the plant going briskly, and should prove a profitable investment. For poor land from 1 to 2 cwt. may be used, but it is wise not to overdose land. High farming in the true sense is not extravagant farming, but is the happy mean between poverty and waste. It is really common sense farming, affording crop and stock a full dietary so as to induce full and early development in both.

See that calves are fed frequently and are kept warm and dry. To feed them only twice in twenty-four hours is wrong; they consume food so greedily then that the stomach is overlaid, and the animals have to endure the trying alternations of hunger and repletion. Can we wonder that under such a monstrous regimen they suffer severely from scour, do not thrive, often die outright? Rather feed them moderately three or four times daily, pay close attention to shelter and comfort, let them run out a little on warm fine days, but never expose them to wet and cold at any time. We know of several yearlings being lost recently of disease resultant from exposure day after day, in fact day and night, to the cold wet weather of last summer and autumn. Hoose has been rampant among them, so has blackleg, yet we much fear a repetition of the same faulty practice this season. It should never be forgotten how liable such young stock is to suffer from negligence or ill treatment of any kind; well do they repay us for our best care.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1892. March.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 20	30.174	41.1	37.6	N.E.	39.3	49.7	32.4	85.4	28.2	—
Monday .. 21	30.376	36.9	34.1	N.E.	38.7	55.0	28.4	81.3	24.6	0.159
Tuesday .. 22	30.416	40.1	38.7	N.	39.2	42.3	36.4	61.1	34.0	0.120
Wednesday 23	30.518	40.9	38.9	N.	39.0	48.7	33.2	74.2	29.4	—
Thursday .. 24	30.332	41.4	39.9	N.	39.9	46.6	37.0	59.1	30.4	—
Friday .. 25	30.084	37.6	36.9	S.E.	39.9	48.2	35.9	62.5	29.3	0.010
Saturday .. 26	29.703	44.4	42.4	W.	40.0	58.4	36.4	83.0	34.0	0.187
	30.229	40.3	38.4		39.4	49.8	34.2	72.4	30.0	0.476

REMARKS.

20th.—Sunny throughout, but cooler.
 21st.—White frost early; sunny day; clouded over at sunset, and rain in evening and night.
 22nd.—Overcast morning, with a little rain early; wet from 0.30 P.M. to 6.30 P.M.; overcast evening.
 23rd.—Generally overcast, but occasional gleams of sun in afternoon.
 24th.—Fair, but sunless.
 25th.—Overcast and dull morning; sun shining through haze and thin cloud in afternoon; fog in evening.
 26th.—Hazy early, snowy morning; clouded over about 3 P.M., and occasional slight drizzle and rain in afternoon; heavy rain in evening.
 Northerly winds prevalent, with high barometer; temperature nearly the average.—
 G. J. SYMONS.



THE Exhibition of the National Chrysanthemum Society, held at the Royal Aquarium, Westminster, in November last, was with two exceptions—1885 and 1889—smaller than any of the six previous Exhibitions, as the following particulars will show :—

	1885	1886	1887	1888	1889	1890	1891
Incurved	839	1080	964	1147	682	1377	827
Japanese	835	1026	1221	1759	922	2054	975
	1674	2106	2185	2906	1604	3431	1802

As was the case at the two preceding shows, the early flowering sorts were last year but indifferently represented. Happily for our present purpose these early kinds happened to be specially favoured in 1886, 1887, and 1888, so that in this analysis the early and late varieties are as a rule placed on very nearly an equal footing. This is a matter of no little importance, as it is surprising what a marked influence forward and backward seasons have upon the number of early flowering varieties staged at any of these exhibitions of the National.

In calculating the averages which regulate the positions of the different Chrysanthemums in the accompanying tables, no account has been taken of the number of times any variety was exhibited, except of course those of 1890 and 1891, until two or three years after it was first sent out. This is done in order that the newer kinds may have something like a fair chance against their more established rivals; for it is seldom that any new sort appears in sufficient force to enable it to do this until the second or third year, as the case may be, after its introduction. In the last analysis, however, owing to the Jubilee Exhibition having been very much larger than any of its predecessors, many of these newer varieties had higher values, and consequently better places given them than they were justly entitled to. To correct irregularities such as these, due to the varying extent of the shows, all the averages in each table have this year been calculated as for an exhibition containing an average number of blooms, taking into consideration the whole of the seven shows. This new departure may at first sight appear a somewhat artificial method, but when once understood it will be seen that in reality it is not so. Indeed, by its adoption the records of all varieties, no matter what their ages may be, are now rendered as nearly comparable as they can well be made.

The most noteworthy feature of the table of Incurved varieties is the fact of Empress of India having regained the premier place on the list—a position it had held throughout the analyses until deposed last year by two new comers, Miss M. A. Haggas and Miss Violet Tomlin. Had the new corrections been applied it is quite certain that these new comers would never have enjoyed even this brief reign, as the exalted positions then accorded them were entirely owing to the 1890 show having been such an unusually extensive one. The following well known kinds were better shown than at almost any of the previous exhibitions:—Princess of Wales, Golden Queen of England, Alfred Salter, and Mrs. Heale; whereas on the other hand Lord Alcester, Jeanne d'Arc, John Salter, Prince Alfred, Mr. Bunn, and Lady Hardinge have scarcely ever been represented by such a small number of blooms.

If we take as a test of the advance made in this section in recent

years the first twenty-four varieties in the analysis for 1885, and a similar twenty-four in the present one, and compare the two lists, it will be at once seen that there have been but few changes during the seven years. In fact, nearly all the favourite exhibition flowers of seven years ago still remain as great favourites as ever. I have now before me a table which has been specially prepared to give the true relative positions occupied by all the leading varieties at the last seven exhibitions. On looking carefully over this table I fail to detect any definite indications of decline in any of them.

It is always interesting year by year to watch in these analyses the progress made by the newer kinds. In this section they are by no means numerous, nevertheless several of them already occupy prominent positions. For instance, two of the varieties sent out in 1888—Miss M. A. Haggas (No. 5) and Miss Violet Tomlin (No. 6)—have proved themselves undoubted acquisitions. Judging by the analysis they appear to have lost ground since last year, but on reference to the table just referred to, in which due allowance is made for the relative sizes of the exhibitions, I find that both were equally as well represented in 1891 as at the Jubilee Show. The other 1888 variety (Alfred Lyne), however, has fallen to the bottom of the list. Of the varieties distributed in 1889 Mrs. S. Coleman (No. 14) has well maintained the good position it held in the previous analysis. John Doughty, which was only staged five times in 1890, was last year represented by twenty-six blooms, and that at an exhibition containing only about half the number of flowers. Camille Flammarion, on its first appearance, rises to No. 35. The only other new kind is Robert Cannell, which, although only sent out last year, will be found as high as No. 29.

Turning next to the table of Japanese varieties we find Etoile de Lyon still holding the proud position it secured last year as head of the list. The following established kinds, taking into consideration the total number of Japanese blooms staged, were never so numerous shown as at the last exhibition—Edwin Molyneux, Avalanche, Ralph Brocklebank, and Boule d'Or. The list of sorts, however, which have been at no previous show so poorly represented, is a much longer one—viz., Madame C. Audiguier, Mdle. Lacroix, Fair Maid of Guernsey, Carew Underwood, Elaine, Comte de Germiny, Criterion, Soleil Levant, Thunberg, Belle Paule, Marguerite Marrouch, and La Triomphante.

Comparing the present analysis with that of 1885, as we have previously done in the case of the Incurved varieties, the revolution which has taken place during this short period will be found to be truly startling. For instance, of the first twenty-four on the present list, only twelve varieties, or half the number, were even in existence in 1885, and of these only ten had been grown a sufficient time to allow of their appearing in the analysis for that year. Even of those which appear in both lists, there are a few which show such decided evidence of decline as exhibition flowers that they are likely gradually to disappear from among the leading Chrysanthemums in this section. For example, Madame C. Audiguier, for several years the premier flower, has been less and less frequently staged at each of the last four shows, and the same may be said of Fair Maid of Guernsey, Thunberg, and some other prominent favourites of only a few years ago.

Like 1887 the year 1888 was a prolific one as regards the introduction of sterling novelties. Of these Etoile de Lyon heads the list, and was last year even more frequently staged than at the previous Exhibition; Sunflower, which stands only second to it, well maintains its position; Condor (No. 22), Mrs. F. Jameson (No. 23), and W. W. Coles (No. 54), have all advanced on their 1890 form; Stanstead Surprise (No. 36), however, was but poorly represented, but this may be in some measure owing to its early flowering propensity. Of the varieties sent out in 1889 W. H.

Lincoln stands at No. 15, a very promising position; Monsieur E. A. Carrière at No. 48; Mrs. Irving Clark at No. 56, Pink Lacroix at No. 57, and Lilian B. Bird at No. 59. Most of the 1890 sorts were even better shown. First, we have Mr. A. H. Neve at No. 30, then Vivian Morel at No. 38, followed by Gloire du Rocher at No. 39, Florence Davis only reaching No. 58. There is only one 1891 kind, Louis Boehmer, which on its first appearance, at once springs up to No. 39.

The varieties named below are arranged according to the average number of times they were staged at the last four Exhibitions of the Society.

REFLEXED.—Cullingfordi, Cloth of Gold, King of Crimson, Pink Christine, Golden Christine, White Christine, Peach Christine, Chevalier Domage, Dr. Sharpe, Phidias, and Putney George.

LARGE ANEMONES.—Lady Margaret, Empress, Gluck, Miss Annie Lowe, Mrs. Judge Benedict, J. Thorpe jun., W. and G.

Drover, Acquisition, Grande Alvéole, Fleur de Marie, Nouvelle Alvéole, Mrs. Pethers, and Gladys Spaulding.

JAPANESE ANEMONES.—Jeanne Marty, Monsieur C. Lebocqz, Nelson, Mdle. Cabrol, Fabian de Mediana, Sabine, Souvenir de Mme. Blandinières, and Mme. Robert Owen.

POMPONS.—Black Douglas, Mdle. Elise Dordan, Golden Mdle. Marthe, Mdle. Marthe, Prince of Orange, Marabout, President, Pygmalion, Rubrum Perfectum, Cendrillon, Charles Dickens, and Comte de Morny.

POMPON ANEMONES.—Antonius, Perle, Astrea, Regulus, Rose Marguerite, Madame Montels, Calliope, Marguerite de Coi, and Miss Stuart.

My best thanks are due to Mr. Harman Payne, who has kindly supplied me with the dates and raisers' names of all the new Incurved and Japanese varieties, where these particulars were not to be obtained from the last edition of the catalogue of the National Chrysanthemum Society.—E. M., *Berkhamsted*.

INCURVED VARIETIES.

Position in Present Analysis.	Average Number of Times Shown in the Seven Years.	Number of Times Shown in 1891.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	58.4	46	Empress of India	1861	{ Downie, Laird, and } Laing	Pure white
2	51.2	39	Queen of England	1847	J. Salter	Delicate rose blush
3	50.6	39	Lord Leicester	1882	Freemantle	Pale primrose
4	48.7	47	Golden Empress of India	1877	Loader	Pale yellow
5	46.8	39	Miss M. A. Haggas	1888	Hayes	Soft bright yellow
6	45.5	38	Miss Violet Tomlin ..	1888	Doughty	Bright violet purple
7	43.4	28	Jeanne d'Arc	1881	Lacroix	Blush white, tipped purple
8	38.8	33	Lord Wolseley	1883	Orchard	Bronzy red
9	36.3	37	Princess of Wales	1865	Davis	Blush, tinted rose
10	35.3	44	Golden Queen of England	1859	J. Salter	Pale straw colour
11	34.6	41	Alfred Salter	1856	J. Salter	Clear lilac pink
12	34.5	15	John Salter	1866	J. Salter	Cinnamon, orange centre
13	32.6	18	Prince Alfred	1863	Davis	Rose carmine, shaded purple
14	32.0	32	Mrs. S. Coleman	1889	Russell	Bright rose, shaded yellow
15	31.0	31	John Doughty	1889	Doughty	Bronze-fawn, suffused rose
16	27.4	19	Nil Desperandum	1862	Smith	Dark orange red
17	23.9	23	Barbara	1869	J. Salter	Bright amber, shaded orange
18	23.7	4	Mr. Bunn	1881	Bunn	Bright golden yellow
18	23.7	29	Mrs. Heale	1867	Heale	Pure white
19	23.6	9	Lady Harlinge	1861	Clark	Silvery rose
20	23.1	16	Jardin des Plantes	1859	J. Salter	Deep golden yellow
20	23.1	18	Mrs. W. Shipman ..	1878	Shipman	Fawn colour
21	21.1	16	Princess of Teek	1868	Pethers	White, suffused pink
22	18.8	16	Hero of Stoke Newington	1873	Forsyth	Rose pink
23	16.6	11	Refulgens	1873	Hock	Rich purple maroon
24	15.0	19	Cherub	1862	Smith	Orange, tinted rose bronze
25	13.7	12	Empress Eugénie	1866	Pethers	Rosy lilac
26	13.1	9	Mr. Brunlees	1884	Smith	Indian red, tipped gold
27	12.2	9	Princess Beatrice	1868	Wyness	Delicate rosy pink
28	12.1	2	Prince of Wales	1865	Davis	Purple
29	12.0	12	Robert Cannell	1891	Cannell	Crimson and golden bronze
30	11.4	8	White Venus	1872	Shrimpton	Pure white
31	10.5	8	Lady Dorothy	1887	Buss	Cinnamon buff, suffused rose
32	10.4	2	Venus	1863	J. Salter	Lilac, suffused pink
33	9.9	0	Beverley	1863	Smith	Cream white
34	8.6	0	Golden George Glenny	1876	Dixon	Bright yellow
35	8.0	8	Camille Flammarion	1889	Sautel	Dark violet
36	7.8	2	Mrs. Norman Davis	1886	Mizen	Rich golden yellow
37	7.3	0	Mr. George Glenny	1870	Waters	Primrose yellow
38	7.0	0	Mrs. George Rundle	1868	Rundle	Pure white
39	6.8	3	Bronze Queen of England	1886	Carter	Bronze brown, tinted rose
39	6.8	6	Charles Gibson	1887	Mizen	Bronze red, centre fawn
40	6.6	1	Golden Eagle	1863	Davis	Reddish bronze, tipped orange
41	6.3	3	Mabel Ward	1882	Ward	Buff yellow
41	6.3	3	Novelty	1860	Clark	Blush
42	6.0	2	Baron Beust	1868	Pethers	Chestnut red, shaded yellow
42	6.0	2	Eve	1865	Smith	Cream white
43	5.5	5	Alfred Lyne	1888	Lyne	Rose lilac

JAPANESE VARIETIES.

Position in Present Analysis.	Average Number of Times Shown in the Seven Years.	Number of Times Shown in 1891.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	55.0	56	Etoile de Lyon	1888	Boucharlat	Rosy purple
2	52.4	41	Sunflower	1888	Cannell	Rich golden yellow
3	51.3	46	Avalanche	1887	Cannell	Snow white
4	48.2	51	Edwin Molyneux	1886	Cannell	Chestnut crimson, golden reverse
5	44.7	14	Madame C. Audiguier	1879	Marrouch	Deep mauve
6	42.3	14	Mdlle. Lacroix	1880	Lacroix	White
7	39.7	24	Val d'Andorre	1883	Pertuzes	Orange red
8	37.2	25	Jeanne Délaux	1882	Délaux	Dark crimson maroon
9	36.4	9	Maiden's Blush	1885	Stevens	Creamy white, tinted blush
10	33.0	37	Stanstead White	1887	Laing	Pure white
11	31.4	31	Madame Baco	1886	Davis	Deep rose
12	30.5	37	Monsieur Bernard	1886	Laing	Rosy purple
13	30.4	30	Mr. Ralph Brocklebank	1886	Winkworth	Yellow
14	29.8	17	Madame John Laing	1885	Délaux	Creamy white, tinged rose
15	28.5	6	Fair Maid of Guernsey	1872	Downton	Pure white
16	27.3	21	Sarah Owen	1887	Owen	Golden bronze, shaded rose
17	27.0	27	W. H. Lincoln	1889	Fewkes	Deep yellow
18	24.7	10	Criterion	1873	J. Salter	Orange amber
19	23.5	4	Elaine	1882	Downton	Pure white
20	23.0	27	Boule d'Or	1882	Bernard	Rich yellow, tipped bronze
21	22.9	1	Comte de Germiny	1881	Veitch	Nankeen, striped crimson brown
21	22.9	24	Condor	1888	Boucharlat	White
22	22.1	22	Mrs. Falconer Jameson	1888	Cannell	Orange bronze
23	22.0	5	Soleil Levant	1874	—	Delicate yellow
24	21.5	14	Meg Merrilies	1871	J. Salter	Sulphur white
25	21.3	4	Thunberg	1881	Veitch	Soft golden yellow
26	20.7	10	Carew Underwood	1886	Beckett	Bronze
27	20.5	10	Baronne de Prailly	1868	J. Salter	Pale rose
28	20.4	5	Belle Paule	1881	Marrouch	White, edged rosy purple
29	19.6	8	Stanstead Surprise	1888	Laing	Reddish purple
30	19.3	6	Mr. H. Cannell	1886	Cannell	Deep lemon yellow
31	19.0	19	Mr. A. H. Neve	1890	Owen	Silvery blush, purplish centre.
32	18.7	14	Japonais	1880	Délaux	Bronze yellow
33	18.6	3	Marguerite Marrouch	1878	Marrouch	Crimson, edged yellow
34	17.7	1	La Triomphante	1885	Reydellet	White, suffused purplish rose.
35	16.0	14	Gloriosum	1885	Waterer	Orange to golden yellow
35	16.0	1	Monsieur Astorg	1883	Délaux	Silvery white, purplish centre
36	15.7	1	Bertier Rendatler	1880	Délaux	Orange, shaded yellow and red
37	15.3	1	Peter the Great	1875	Carey	Lemon yellow
38	14.0	14	Vivian Morel	1890	Lacroix	Rose, striped white
39	13.0	13	Gloire du Rocher	1890	Gibson	Orange amber, flushed crimson
39	13.0	13	Louis Boehler	1891	Henderson	Deep purplish rose, lighter reverse
40	12.7	0	Monsieur Tarin	1883	Délaux	Silvery mauve
40	12.7	8	Triomphe de la Rue des Châlets	1881	Pertuzes	Reddish salmon
41	12.5	2	L'Adorable	1885	Délaux	Canary yellow, tipped purple
42	12.3	0	Mdlle. B. Pigny	1885	—	White
43	11.9	2	Madame de Sevin	1884	—	Rosy purple
44	11.7	2	Duchess of Albany	1883	Jackson	Orange buff
45	11.6	5	Monsieur J. Laing	1884	Délaux	Reddish brown, golden reverse
46	10.9	4	Yellow Dragon	1863	Salter	Bright golden yellow
47	10.3	1	Hiver Fleuri	1879	Délaux	Creamy white, suffused pale rose
48	10.1	5	Mrs. J. Wright	1886	Laing	Pure white
49	10.0	10	Monsieur E. A. Carrière	1889	Délaux	Creamy white, tinted blush
49	10.0	18	W. W. Coles	1888	Craig	Bright terra-cotta
50	9.9	3	Monsieur Freeman	1885	Délaux	Purplish rose, white centre.
51	9.6	9	Lady T. Lawrence	1886	Cannell	White
51	9.6	12	Puritan	1887	Waterer	White, flushed lilac
52	9.0	9	Mrs. Irving Clark	1889	Craig	Delicate peach
52	9.0	9	Pink Lacroix	1889	—	Delicate rose pink
52	9.0	0	Triomphe du Nord	1857	—	Bronze crimson
53	8.9	1	Fernand Féral	1884	Délaux	Rosy mauve
53	8.9	8	Mrs. H. Cannell	1886	Cannell	Pure white
54	8.8	3	Album Fimbriatum	1886	Laing	Pure white
55	8.6	2	Monsieur Brunet	1879	Lacroix	Lilac mauve
56	8.4	7	Monsieur J. M. Pigny	1886	Audiguier	White
57	8.3	5	Marsa	1886	Reydellet	Purple, white centre
58	8.1	0	Monsieur Ardène	1878	Lacroix	Rosy lilac
59	8.0	8	Beauty of Castlewood	1889	Spaulding	Orange, inner surface deep red
59	8.0	8	Florence Davis	1890	Davis	Pearly white
59	8.0	8	Lilian B. Bird	1889	Fewkes	Shrimp pink
60	7.7	16	Mrs. C. H. Wheeler	1885	Waterer	Chestnut crimson, golden reverse
61	7.6	1	Florence Percy	1886	Allen	Creamy white
61	7.6	1	Monsieur H. Elliott	1886	Délaux	Salmon buff, tinted rose
62	7.3	0	Album Plenum	—	—	Creamy white
63	7.1	2	Comtesse de Beauregard	1867	J. Salter	Rosy lilac
63	7.1	0	Flamme de Punch	1883	Délaux	Orange, shaded red
64	6.8	5	Volunteer	1888	Henderson	Flesh pink, tinted rose
65	6.6	0	Monsieur Délaux	1877	Délaux	Red crimson, yellow centre
66	6.3	5	George Daniels	1888	Boucharlat	Pale pink

ROTATION OF CROPS.

GARDENERS may be precluded from paying as much attention to a systematic rotation of crops as the farmers do, yet a change of crop is a main point of good management in gardening as well as in farming, no other means having such beneficial influence on the economical cultivation of the soil. Alternate cropping is a convertible system, and as such lessens the necessity of manuring, for, as pointed out by Sir Humphrey Davy, the whole of the manure is employed either on the immediate crop or on those which follow, for each plant draws a nourishment from the soil peculiar to itself, so what is not appropriated by one remains as support for another crop. But the crops must be diverse, for the principle is that after the land has nourished one crop another of a different kind may succeed, whereas it would be uncertain to follow any given crop with another of the same kind, because the preceding crop has extracted the substance peculiar to it from the soil in such quantity as to render it unable to support a succeeding one of the same sort. In practice, therefore, it is essential to economical production to alternate crops, and seek the restoration of the peculiar substance extracted by a given crop, so as to admit of its profitable growth a second time by such mechanical and chemical changes in the constituent particles of the soil as may arise from the cultivation of another different crop or crops rather than strive to effect it by manuring, which is uncertain and costly. Thus relief is sought in a judicious arrangement of crops, and the soil so relieved produces successively crops of different habits and constitutions in the most perfect manner at the least expenditure in manures. This is the first great principle in the economical cultivation of the soil, and rests on the foundation that a balance is thereby maintained amongst the food elements in the soil. Each crop takes up its particular food, and, as different crops require different sustaining elements, every crop in a well arranged rotation receives its essential foods in full quantity without prejudice to a succeeding one, whilst the land is left in no worse heart, but actually in better condition than at the commencement of the rotation. The convertible system of cultivation is also economical in labour, cleaning the land and improving its condition.

When a person acquires land his first aim is to make it fit to nourish some crop—generally roots, and he applies manure only just sufficiently decayed as to be workable. Fermentation ensues; it may be inappreciable, but the decay proceeds and produces heat, which assists the germination of the seed and the growth of the plant. The manure is only partly exhausted, and the soil very little by the root crop. The allotment holder follows it with Barley, and this crop receives the soluble parts of the still decaying manure, deriving therefrom sufficient support. If the holder has a cow grass seeds may be sown with the Barley, and then the grasses—Rye Grass and Clover—remain, which take a minimum of matter from the soil, though consuming substances of little value to other crops; for these plants, especially Clover, derive a considerable amount of nutriment from the atmosphere, and when turned under at the end of the course the decay of their roots and leaves affords manure for a Wheat crop, and the least soluble parts of the manure applied with the first crop are only then broken down, so that the phosphates fall to the exhausting crop—Wheat.

The rotation is a four-course. 1, Fallow crop, roots: Potatoes, Swedes, Mangold Wurtzel, Cabbage; 2, Barley or Oats; 3, Clover alone or with Rye Grass, Peas, Beans; 4, Wheat. This four-course system is a very old one, and still the best, though it is sometimes extended to six or eight years, and subject to modification. A Wheat crop, for instance, is taken after Potatoes, and Barley succeeds the Wheat, and Clover may stand two years, or with grass seeds longer; but the four-course is generally practised. Shorter rotations have been tried, and, as a rule, given up because too expensive to work, the profits not recouping the outlay. Now, this four-course system may seem inapplicable to gardens, though such is partly the case; we may briefly examine the rotation in view of small holdings and allotments.

FIRST YEAR.—*Fallow Crop*.—The allotment or small holding is, as a rule, foul and exhausted. The land has not been kept clean, deeply stirred, and recently manured by the late occupier, so that a tenant enters with the land in as bad condition as it ever can be at the close of a four-year rotation—two courses of which are exhaustive; and the first consideration in either case is deep stirring and cleaning. Besides that a pulpy and bulky crop is required as food for whatever animals the cultivator may keep—whether pigs, sheep, or cattle. The land is deeply stirred, perennial weeds are drawn out, removed or burned, and a good tilth produced. Cleansing the land is an important part of good husbandry, and is one of the advantages of a root crop, but many other good things are effected, as the thorough mixing of the soil constituents, its aëration, and amelioration. Manure also in a

lasting form is a principle of this crop, for roots may not be grown in a paying crop without a liberal application of manure, which, as we have already noted, is not expended in the crop, or only so much of its constituents as are then available as food, leaving a large remainder of manurial elements for succeeding crops. Then the crop residues—the fibrous roots, the leaves—always some, if not all, and commonly some annual weeds just in the right condition (before seeding) for turning under as “green” manure are a source of nourishment to the next crop. Thus, root crops are restorative on account of the manure applied remaining partly unexhausted, aided by the crop residues, and are more so when the “roots” are consumed by stock upon the land, for the large amount of crop produced is returned to the land again as manure—that is, the most important constituents of the roots, for a very small amount of manurial elements are retained by the animals. But there are other advantages of the fallow crop, surface hoeings—the working of the land at the best possible time, admitting the sun, air, and rain, and these never enter the soil without producing important changes, breaking down stubborn substances, liberating and assimilating plant foods, and storing them against the time they are needed by crops.

The fallow crop not only cleanses the land of weeds, but the scarifying incidental to its culture disturbs and hinders the multiplication of insects, whilst the rotation is altogether antagonistic to the fungoid diseases and insect enemies of crops, for, when the same kind of crops are grown consecutively on the same ground, the fungi and insects infesting these particular crops have time to multiply and become a plague, but the variation of the crops takes away the food of the particular fungus and insect, so that the pests must die out or transfer their depredations elsewhere. Thus the crops are kept as little liable to infestation by destructive parasites as is practical by cultivation. But the fallow crop does more. It makes the land fitted to carry not only its own but the whole of the crops of the rotation. True, artificial manures have a share in the production of the bulky fallow crop, but the phosphatic and potassic elements applied are in such dissolved or easily soluble form as to practically aid nothing other than the root crop, whilst the nitrogenous substances available as food are either used by the crop or washed away; yet the results are marked by greater vigour in the crops, simply because the rotation accords to every crop those elements each particularly needs. Thus all are maintained in vigour instead of weakened by continuously growing the same crops on the same land, and the sturdy plant, the healthy crop is better able to withstand the attacks of its peculiar fungoid ailments and particular insect ravages.—G. ABBEY.

(To be continued.)

EXPERIENCE IN FREESIA CULTURE.

HAVING read many interesting accounts of successful growers of this valuable and fragrant flower, perhaps the experience of one who has had failure as well as successful results may be of interest to those who have not yet been successful with Freesias. There appear to be no hard and fast lines laid down as to the proper time for potting the bulbs. One grower recommends potting in August, others in September and October, but I find the first week in July to be the best time for the work. We use both 5 and 6-inch pots, also pans, always in a clean state. The compost we use consists of loam and leaf soil in equal parts, with a little cow manure added, and a good dash of silver sand, the cow manure forming about one-fourth part. This is rubbed through a quarter-inch sieve, so that it may be thoroughly mixed with the soil. The pots are carefully crocked, and six bulbs are placed in 5-inch pots, eight in 6-inch pots; the pans are used for the smaller bulbs. When potted they are placed on a layer of ashes in a cool frame, where they remain until late in the autumn, or as long as they are safe from frost. We are careful not to use soil that is very wet or very dry. The surface is occasionally damped with a fine-rose can, but in no case is sufficient water given to go down to the bulbs (which are covered about 2 inches deep) until the grass-like foliage shows through the soil, then water is given more freely.

As soon as the pots are filled with roots water is given liberally, also liquid manure occasionally. This is made by placing a quantity of horse, cow, and sheep manure, also a bag of soot, into a large tank of water. By the end of October the pots are so full of white roots that scarcely any soil can be seen when a plant is turned out of its pot. I notice that the roots are very fond of massing themselves among the crocks. We give abundance of air, the lights being drawn off the frame during fine days, and placed on again at night; and a brick is placed under the light, so as to give a free circulation of air all the night. By this treatment the foliage becomes strong and sturdy. Late in the autumn the plants

are taken to the greenhouse, and afford a great profusion of flowers from Christmas until March. We have had several sprays with fourteen blooms, and a number with twelve and thirteen, these producing three and four branchlets, having eight, five, and four blooms respectively. They do not require any staking until the flowers commence expanding, when the largest sprays become heavy, and are liable to bend down. From the time the flower spikes show until the seed is nearly ripe we give Clay's fertiliser at intervals of two or three weeks with abundance of water.

As soon as the flowering ceases the pots are placed on a shelf in a late vinery, and the plants receive every attention until the seed is ripe and the grass becomes yellow, when water is gradually withheld. The soil is allowed to get thoroughly dry or baked with the sun, and the bulbs remain in this resting state until about a week before they are repotted. We have a number of bulbs as large as Filbert nuts. By adopting the routine described we have no difficulty in growing Freesias successfully.

The failure we had with them was five years ago. From 250 bulbs we did not have one spray of bloom. The sole cause of this failure was the bulbs not having been thoroughly matured the season before. Owing to want of space on the shelf the plants were put under a stage in a greenhouse as soon as they were out of bloom, where the foliage quickly became yellow and died off. In due course the bulbs were shaken out of the soil and appeared ripe and sound, but nineteen out of twenty never grew and produced foliage, but formed small white bulbs at the top of the old ones without making a single root. After waiting several months they were thrown away, and a new stock bought the following season. Since then we have never had a failure.—C. BROOKS, *Red Rice*.

HARDY FLOWER NOTES

SNOWDROPS.

So beautiful and so valuable is the Snowdrop, that even at this late period a few further remarks, inspired by a desire to do justice to *Galanthus Fosteri*, and to notice some more of Mr. Wm. Thomson's seedlings, may still be welcome. A short time ago I spoke of *G. Fosteri* as a variable species, as perhaps hardly deserving the encomiums lavished upon it, and generally as a somewhat disappointing Snowdrop. Since that time I have flowered a superior form, and have to say frankly that I have to modify to a great extent my former opinion. This form is much purer in colour and with brighter markings and finer leaves, but, like the others I have grown, hardly in keeping in point of size with the name of the King of Snowdrops. It is, however, a gem of its kind, and I shall endeavour to increase my stock of this superior variety. The receipt of another box of blooms from Mr. Thomson, together with particulars of their foliage, leads me also to think that they, too, are worthy of some space. With the others came a specimen of the typical *G. plicatus*, one of the parents of the crosses, which I was glad to have for comparison, as my flowers of that species were over. Perhaps the finest of the flowers was one marked No. 2, a pure white flower of large size, with long outer petals, and with the green marking of the inner petals almost identical with those of *G. plicatus*. This flower is particularly beautiful when in bud, reminding one of the long ear-drops worn by ladies. This variety has, it appears, foliage as large as that of *G. plicatus*, but a little darker. Two flowers marked No. 3 have the green markings on the tube similar in form to those of *G. nivalis*, but larger and deeper in colour, and one of these has a green stripe about one-sixteenth of an inch broad down the centre of the inside of one of the outer petals, on the outside of the same petal being also a narrow green stripe about one-eighth of an inch in length. The other flower had a short narrow green stripe on two of the petals. The foliage of this is a little darker and slightly larger than the other, and appears from its general appearance to be a distinct cross. It is possible that some interesting results might be obtained by seedlings from these forms. Several other flowers from plants with long, broad, and dark leaves five-eighths of an inch broad were also enclosed. These varied very much in form, size, and shape of markings, one very beautiful ear-drop-shaped one, and one with wide expanded mouth, being very noticeable among the others. I trust some other readers of the *Journal* will take up the work of raising Snowdrops, and thus add a new interest to this flower so dear to all.

CROCUSES.

From the Snowdrop to the Crocus causes almost no break in our train of thought, so inseparably are they connected in our minds with the opening season, and no pen can do justice to the vividness and beauty of the masses of colour now decorating the garden. To see the Crocus at its best it must be grown in masses

or broad lines of one colour, and not in the single lines or bunches of four or five we so often see; and to make the picture still more perfect it is better to plant the named varieties, as these will flower together, where mixed—whites or purples or stripes, so often sold in this way at a lower price—produce a comparatively disappointing effect. Early in the season a few in the clump will be in advance of the others, and stand out in conspicuous loneliness, and later these early flowers will be past, and their absence will leave a gap in the mass, depriving it of some of its beauty. Then, too, mix as you will, the darker striped varieties have a habit of congregating together, and the same with the lighter ones, and thus at times a curious piebald-looking appearance is produced. By all means pay a few pence per 100 more and have named varieties.

CHIONODOXAS.

I do not know that I have ever seen *Chionodoxa Luciliæ*—the Glory of the Snow—so fine with me as this season. The wet autumn seems to have suited it to perfection, and its charming Nemophila-like blue and white flowers are very delightful. When longer established the newer *C. gigantea* will be a grand addition to our garden flowers. Even comparatively recently planted bulbs have produced very fine flowers, with large open petals of a most beautiful colour. It must be remembered that the Glory of the Snow requires to be established for a few years before it displays its beauties in the full perfection of their charms. This, however, need not deter anyone from purchasing, as the first season they will give satisfaction, especially if home-grown bulbs are planted. Another thing greatly in its favour is the readiness with which it grows from seed. This should be sown as soon as ripe. When this is the practice followed the seedlings will appear the next spring, but if kept until the spring before sowing the young plants will not appear until the following year. I have at present a large number of seedlings of *C. sardensis*, and a considerable number of young seedling plants of *C. gigantea* and *C. Luciliæ*, and am very desirous of seeing their flowers to see if they give much evidence of sporting from the original colour or form. I believe Mr. Allen of Shepton Mallet has seedlings between *C. Luciliæ* and one of the Scillas; and although my plants of *C. Luciliæ*, from which I saved the seed, were not fertilised artificially, they were grown close to *Scilla sibirica*, and I am in hope that the bees may have done something in the way of carrying the pollen. I have been somewhat disappointed with *C. cretensis*, which seems a small-flowered species, but another year or two may cause it to improve. *C. Tmolusi* I have not grown, so can express no opinion on the disputed question of its identity with *C. sardensis*.—S. ARNOTT.

NEW VIOLAS.

I HAD a very pleasant 1st of April surprise in a box of *Viola* blooms sent to me by Messrs. Dobbie & Co. of Rothesay, who have introduced several fine new varieties raised by Mr. Baxter and others. The plants from which the blooms had been gathered were in frames, and many of the flowers were much paler in colour than they would have been if grown out of doors, but it was sufficient proof that in pots under glass they are very lovely objects for early greenhouse decoration. No one who has not seen some of the more recent introductions can form any idea of the exquisite colours, combined with form and substance, which exist in many of them, especially in Neptune, a grand flower, rich shaded violet purple, with shaded white and lilac clouded top petals, and bright yellow eye. Dorothy Tennant, shaded lilac, veined with purple, and darker centre—a handsome flower of fine form and substance. H. M. Stanley, lilac rose, clouded and blotched with rich violet purple—a truly lovely variety of fine form and substance, and rich in colour.

In yellows Bullion, dark rich gold; and Wonder, a lighter shade of yellow, are both first class, and should be in every collection. In whites, blooms of Countess of Wharncliffe, snow white in colour, and free from any ray or blotch, were sent. This is a great desideratum in selfs. The Countess of Wharncliffe is of the same habit and form as Countess of Hopetoun, but much purer in colour. Blooms of Lady Dundonald, clear white, with blue rayed centre, and neat form; and of Snowflake, which is not so pure in the white as either of the preceding or so good, although a showy bedding variety, were also sent. Two very pretty pale lilac tinted white varieties were included—viz., Quaker Maid, delicate pale lilac, flushed with white, with small yellow centre; and Gipsy Queen, a little lighter in colour than the Quaker Maid, and striped and flushed with blue lilac—a charming variety.

A bloom of Bridesmaid (one of my recently raised new varieties) went to prove still further what a beautiful variety this

is. A delicate tint of pale primrose, entirely free from any rays or blotches, and of the habit of Countess of Hopetoun in size and form of flower.

Other kinds sent were Crimson King, Lady Amory, William Neal, Princess Beatrice, and Beauty, five first-rate varieties, and all beautiful. Illuminator is a striped pale lilac and pink, pretty, but sadly wanting in substance, and is what florists call flimsy. Peacock is a German variety of the Pansy, and is not to be classed with our bedding Violas. I saw a quantity of plants of the Peacock variety in bloom at Mr. Eckford's Nursery, Wem, Salop, last August, when I went to inspect his 2½ acres of Sweet Peas, and they varied in colours and marking, but none was good enough, in my opinion, to grow, although Mr. Eckford offered me as many as I liked.

Columbine is an old variety now, with pale lilac top petals and margin to the lower petals. Hartree is seemingly a seedling from it, with pale creamy lilac top petals and in the margin of the lower petals, and pale cream centre. A seedling marked "P.B." is also of the same type, a miniature Pansy in fact, with pale salmon tinted lilac top petals and margin to the lower petals, pale yellow body colour, and rayed centre. I could not worship it, however. And then Moonlight is a reproduction of fifty years ago, simply a seedling of the old wild Pansy, as found by Lord Gambier in the fields at Iwer, near Uxbridge, sixty years since or so, and cultivated by his head gardener, Mr. Thomson. With the wealth of fine varieties we now have I grieve to see such a worthless variety introduced. Still, honour must be given to Messrs. Dobbie & Co. for their persistency in exhibiting our beautiful Violas as they have done at the great shows about the country, and for the fine collection they cultivate. Like myself they have discarded a large number of so-called fine varieties.—WILLIAM DEAN.

POTATOES AND EXHIBITIONS.

It would be exceedingly interesting to have revived once more some of the features of the old Potato exhibitions. Should the proposed Potato Show at Earl's Court be carried out, it is hoped that we may see Potatoes in the fine form we were so familiar with at the Crystal Palace a few years since. It is very important in relation to this Show that the schedules of prizes should be got out as early as possible, and considering the period which has elapsed since the subject was mooted it would seem as if much time has been wasted. It is certain that for several years there has been an appreciable falling off of interest in Potatoes, and that the culture of many good varieties, especially those having coloured skins, has been materially neglected. It may be true that in a certain sense there are many varieties which have obtained the appellation of show sorts—not that they are deficient in quality or productiveness, but rather because they have not come into market favour through colour of skins or some other causes. We cannot hope to have a very attractive Potato show without there is a plentiful admixture of colour on the tables. A show of entirely green Apples would be as pleasing as an exhibition of all white Potatoes, and whilst it is well to have in all large shows classes for coloured as also for white varieties, all mixed collections should include at least one-third coloured varieties to give effect and add unquestioned distinctness. In this latter sense colour proves specially valuable, because in the white forms there is often such sameness that undoubtedly distinct varieties in growth have little or no distinctiveness in tuber.

At the International Potato Shows, all other points in collections being equal, it was found specially advantageous to an exhibitor to have good variation both in form and in colour, as the special object of creating collections of twelve or twenty-four varieties is to encourage distinctness, without which both monotony and possible deception may arise. The great importance of having schedules for a Potato show at once issued is evident when it is understood that we are now right into the midst of the planting season. Ordinarily, it is not too late to plant so late as the first week in May, but the middle of April is a good average time, as if only the commonest trouble has been taken to properly sprout Potato tubers in shallow boxes, growth from the planting is rapid and strong, and the production of tubers more readily assured. No one who purposes growing Potatoes in the hope of getting fine, handsome, exhibition samples should neglect the sprouting of the tubers, not only to have growth rapid and certain from the moment of planting, but also to have only the stoutest of the eye buds or shoots on the tubers preserved, and all others removed. Under any conditions, but especially for the production of show Potatoes, the seed tubers should not be allowed to carry more than one or two at the most of eye buds, as only one or two main stems is productive of fine even samples, whilst several stems are productive only of inferior tubers.

Usually it is a waste of time to endeavour to obtain handsome clean tubers from stiff, cold, or ungenial soils. Still, if ever there was a season when such soils should be found in an unusually favourable condition it is just now, when we have had so much of drying wind, and of late sunshine, with a comparative absence of rain. A dry spring always favours Potato planting, whilst a wet spring is disastrous. But let the season be ever so favourable, the grower of Potatoes for exhibition is likely to have the best results from stiff land if the tubers are planted in furrows at 3 feet apart; and it is better to be liberal with space than otherwise. When a plentiful supply of fine soil of some description—leaf mould, old potting soil, and road trimmings, well mixed—is at hand, lay some a few inches thick about the sets ere the ordinary soil is filled in. If in planting Potatoes in this way the intervening soil be somewhat trodden, if the weather be dry, a free forking-up soon afterwards will still further assist to pulverise it fit for earthing later.

It is a special advantage also in planting tubers in furrows that dressings of any form of phosphatic manure, it may be desirable to use, can be cast in with the sets. When so applied the little rootlets which the shoots throw out almost at once feed upon the dressings, and thus strong growth ensues, laying the foundation of specially robust stems. It is unwise to cover the sets too deeply. Ordinarily a covering of 4 inches of soil is ample, as the stems do not develop strength until leaves are formed, and, of course, the sooner they reach the light the better. If shallow planting tends to the production of tubers near the surface, that is an evil which can be remedied by the addition later of plenty of fine soil, and having ample room between the rows to enable earthing to be done with entire facility. A good body of well-pulverised soil over the tubers tends to exclude the air and maintain natural colour in all its purity, and also to exclude disease spores when wet weather prevails. It is unwise to plant Potatoes grown for any purpose in too rich soil, because rank top growth usually induces the production of coarse or unduly large tubers. Without doubt we do now pass as meritorious, larger tubers than was the case twenty years ago, for the reason, perhaps, not only have later varieties shown greater average size, but also have with that size displayed higher average quality. Still, it is unwise to trust too much to size as an exhibition element. A good average sample, very even in size throughout, whether in single dishes or in collections of many dishes, is invariably more worthy of trust and of consideration than is an unduly large sample. With these features, however, must be conjoined freshness of colour, cleanness of skin, and general handsomeness.

Success in exhibiting Potatoes depends first on culture, second on care in lifting and preserving, and third on knowledge of what samples to select and how to set them up with most taste and judgment. A good deal of care is essential in relation to lifting tubers. The fork should go in rather wide of, and be thrust well under the roots, lifting them bodily out from the rows and dropping them down so that they fall to pieces gently. Then should come care in selecting the best tubers, gathering them into shallow boxes or baskets, having a little soft hay or moss in them; the tubers do not then suffer from abrasions, and then be at once either wrapped singly in soft paper and be placed away in close boxes in a dark shed, or else be laid in layers in sand in boxes, each sort being carefully labelled; and kept there until a few days before the show is due; then all should be looked over, the very best selected, washed in soft warm water with a little soap and a soft brush, be afterwards wiped dry, then again selected so as to set aside specially the quantities required for exhibition, and then again papered and packed into baskets or hampers, lined with hay so that they will travel well and safely long distances without injury. If Potato culture is entered into for the production of exhibition tubers it is worth doing well, and once a good collection is tabled there are few garden products after all which make so attractive as well as so profitable a display.

Although those previously known as exhibition varieties have somewhat fallen out of cultivation, yet they are to be had if sought for from growers. Of fine show sorts of white kidneys there is an abundance. Reading Giant, Magnum Bonum, Chancellor, Snowdrop, The Canon, Sutton's Perfection, White Beauty, Puritan, White Kidney, Covent Garden Perfection, Holborn Perfection (we have numerous Perfections), and The Bruce, offer a fine selection, both for the production of show tubers and for ordinary consumption.

Of white rounds there are Satisfaction, Windsor Castle, London Hero, Schoolmaster, Prime Minister, Holborn Prolific, General Gordon, Sutton's Seedling, Fidler's Prolific, Snowball, Clipper, and The Doctor, all excellent.

Coloured varieties are less abundant, but good kidneys are Dempsey's Red, Prizetaker, red; Beauty of Hebron, pink; Bedford Purple, Edgcote Purple, Mottled Beauty, Crimson Beauty, and Enterprise offering a liberal selection, whilst of rounds Reading

Russet, King of the Russets, Purple Perfection, The Dean, Vicar of Laleham, Conference, Radstock Beauty, and Blue Eyes are the best generally of that section.—A. D.

CALADIUMS AND THEIR CULTURE.

PERHAPS nowhere in the wide range of fine-foliage plants can a more beautiful or interesting family be found than that of the Caladium. Whether the plants are grown from single crowns in small pots for room decoration, or as large plants some 4 or 5 feet through, their beauty ever remains the same, and their cleanly appearance—for nothing attacks the foliage with the exception of a little green fly—makes them most desirable for those possessing an intermediate house or stove to cultivate during the summer and autumn months.

If the plants are to be grown on the single crown system select some of the strongest crowns, and place in 3 to 6-inch pots, which will be found useful for vases and other receptacles of an ornamental nature. A suitable compost will be found in three parts good fibrous loam, with rough leaf mould and some decayed manure to form another part, and sufficient silver sand to keep the compost porous. After potting afford a little bottom heat if convenient, and give water sparingly until growth fairly commences. If larger plants are required 8, 10, 12, and 14-inch pots may be used. When the plants are in good growing condition they must be kept well supplied with both water and clear liquid manure; they should not be too far away from the glass, or they will lose that fine sturdy appearance which is always admired in a well grown Caladium. If the plants are required for room decoration the best way is to gradually harden them by removal to a cooler house, being careful for a time not to bring them into contact with a draught. Whilst in this house watering will have to be done a little more cautiously. This hardening process, if carefully done, will allow the plants to be employed freely for house decoration, and also for the embellishment of the conservatory in the declining summer months, when a little change in the occupants is necessary to make the structure interesting. When the plants are seen to be losing the firm appearance of the leaves great care is requisite in watering for the sound keeping of the corms during the winter, only giving sufficient to enable the maturing process to be gradually, yet thoroughly effected, finally withholding water when the leaves are gone.

Many ways of storing Caladiums have been advocated, such as taking them out of the pots and storing in boxes of sand. This plan is useful for those in want of pots, but we always turn ours on their sides underneath the stage of a fernery which has a winter temperature of 50° to 55°.

As regards varieties the introductions of the past few years have entirely put into the background many of the older forms, and so beautiful are the majority of them that it becomes difficult to make a selection. When visiting Messrs. Clibran's nursery at Altrincham last summer I was much struck by their magnificent collection. I took a note of some very fine forms among them, but do not pretend in this note to give descriptions, which may be better found in the catalogue. In the new and rare varieties were B. S. Williams, Ibis Rose, Ferdinand de Lesseps, James H. Laing, Louis A. Van Houtte, Lymington, Mons. Leon Say, Mrs. Harry Veitch, La Lorraine, L'Aurore, Oriflamme, and Marguerite Gelinier. Extra good varieties.—Amœnum, Albo-luteum, Charlemagne, Comte de Germiny, Cardinale, Candidum, Duchess de Mortemart, Anna de Condeixa, Elsa, Golden Queen, John R. Box, L'Automne, Leopold Robert, Luddemanni, Madame Fritz Kœchlin, Madame Imbert Kœchlin, Madame Laforge, Madame Lemoïnier, Raymond Lemoïnier, Perle du Brésil, Salvator Rosa, Vesta, Rameau, Madame Marjolin Scheffer, Sanchoniathum, and Souvenir de Madame Bernard. Then the most useful and interesting little gem, *C. argyrites*, must not be forgotten, as it is still unique for appropriate positions and decorative purposes.—R. P. R.



CELOGYNE CRISTATA.

I HAVE forwarded you a photograph of a *Cœlogyne cristata* that has just flowered in an 8-inch pot in these gardens. I have sent it at the suggestion of my employer, J. H. Tuke, Esq., thinking

you might make some use of it if you think it worthy of being engraved in your valuable journal. It certainly looked very handsome when at its best.—W. SPRINGHAM.

[Evidently a large and well-flowered plant, but not quite equal to Mr. Crowley's fine specimen figured in the Journal of March 8th, 1888.]

CYPRIPEDIUM HYBRIDUM GIGAS.

A HANDSOME *Cypripedium* named *hybridum gigas* was exhibited by Mr. Bond, gardener to C. Ingram, Esq., at a meeting of the Royal Horticultural Society on January 14th, and received an award of merit. It is one of the largest flowered hybrids yet

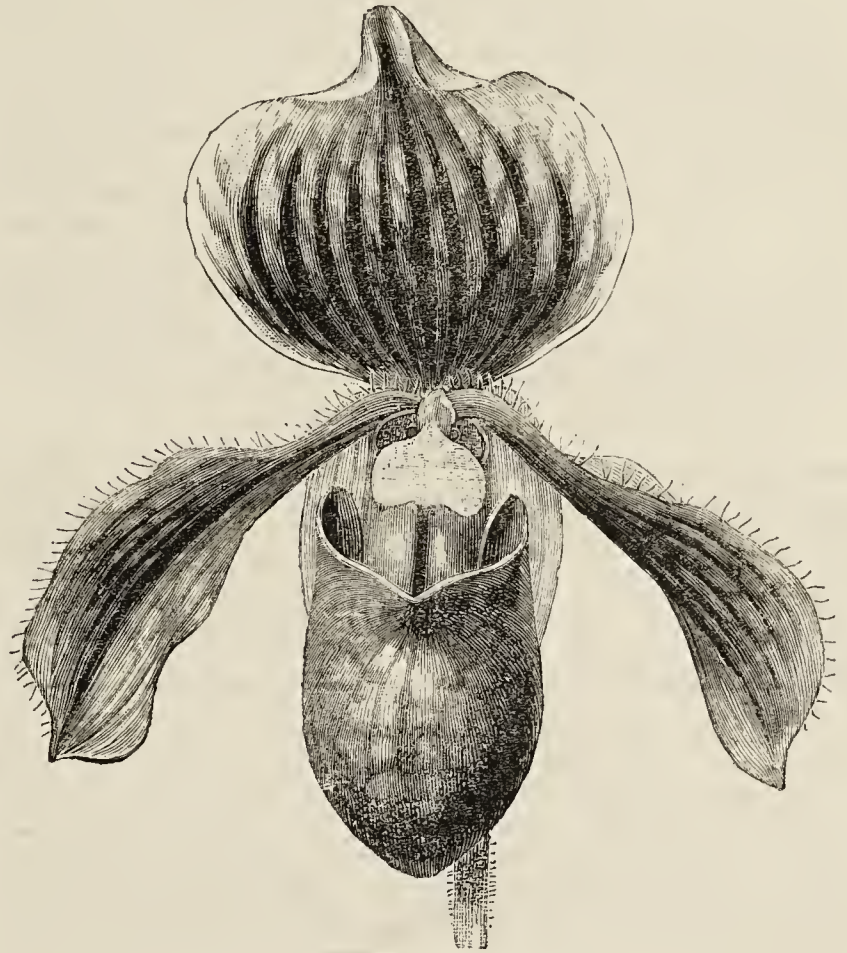


FIG. 42.—CYPRIPEDIUM HYBRIDUM GIGAS.

obtained, and is the result of a cross between *C. Lawrenceanum* and *C. Harrisianum nigrum*, showing the characters of both parents. The dorsal sepal is 2½ inches across, very broad and round, veined with dark purplish crimson, edged with white, and tipped with green. The petals are broad, tinted purple, with a dark central vein, the lip glossy and purplish. Fig. 42 represents this fine hybrid.

JOTTINGS.

GENERALLY speaking, Orchids do so well in peat, charcoal, and living sphagnum that there seems to be no occasion to resort to artificial methods of feeding them. It appears strange, nevertheless, that nearly all plants are benefited, especially when they have been in their pots some time, by judicious applications of artificial manures, and yet the majority of Orchids be exempt from this practice. If they do well in the mixture given, and can be induced by feeding to do better, I have no doubt many would willingly drop the old practice and adopt a more enlightened one.

We know very well that *Phajus*, *Calanthes*, *Pleiones*, and a few others are improved by liquid manure and a little more substantial fare than is generally employed as a medium for the roots of Orchids. We might include some *Cypripediums* in this list, while some others seem to resent any addition to their food supply other than they are in the habit of having in a general way. It seems to be readily understood why these terrestrial species should differ from epiphytal Orchids, and require more substance in the food supply provided for them than those grown on trees. No doubt a good number of cultivators would willingly experiment in this matter, but their stock of plants may be limited, and they cannot afford to spoil the few they may have; besides, they have their reputation to maintain, which may mean a good deal.

Experiments have been made, and glowing accounts have been given of the marked changes in health and strength that took place by the aid of artificial manures. It was, after all, too early to speak with certainty how the plants would endure such forcing at the end of a few years. I had some doubts of over-development and a

thorough exhaustion of the plants resulting in decreased energy and vigour. If the experiments so thoroughly and successfully begun have been continued, the results of the practice would prove valuable to many readers interested in Orchid culture.

It would be wise if those who wish to possess Orchids and have only one small house in which to grow them would use a little more discretion in the selection of varieties. It is often the case that a small collection contains a few plants that need a much higher temperature than the majority, and some a great deal lower. The result is much waste in fuel if the temperature is maintained to suit the few that need more heat, while if it is so regulated to suit the cooler ones a good number soon present a sickly appearance and prove unsatisfactory. Not only are amateurs guilty of this, but gardeners who should know better. One example may suffice. That lovely Orchid *Lælia autumnalis* does well in a strong heat for a few years; but in the end it degenerates and eventually fails altogether. It might be kept in a fair state of health with *Cattleyas*. Some few persons succeed with warm, cool, and intermediate Orchids even in plant stoves, but these are exceptional cases, and not the experience of the majority. Trouble, failure, and annoyance are saved by selecting those only that will flourish under the treatment, temperature, and conditions intended to be maintained from the commencement.—R. M. B.



EVENTS OF THE WEEK.—The Committees of the Royal Horticultural Society meet at the Drill Hall on Tuesday, April 12th, when a good display of Daffodils, Narcissi, and other hardy spring flowers is expected. A paper on "Daffodils" will be read at the afternoon meeting. The Sheffield, Hallamshire, and West Riding United Chrysanthemum Society meet at The Museum, Orchard Street, Sheffield, on Wednesday, April 13th, when Mr. Cooper will read a paper on "The Gardenia."

— **THE WEATHER IN LONDON.**—During the present week bright summer-like days have prevailed, and the minimum temperature during the past two or three nights has been 54°; in the day the shade temperature has approached summer heat. The soil is in free working condition and the air dry. Rain is needed by some crops.

— **WEATHER IN THE NORTH.**—The close of the week ending 4th inst. has been in complete contrast to its opening in frost and snow. The first was a day of summer sunshine and warmth, and although a cold east wind has prevailed during the last two days the weather is extremely fine for the season. 5° frost were registered on the morning of the 2nd.—B. D., *S. Perthshire*.

— **THE WEATHER AT STIRLING.**—Frost was registered on twenty-three nights during March. The lowest readings were the 9th, 19.9°; 16th, 18.2°; 28th, 13.8°; and 29th, 17.3°. The warmest night and day were the 18th, with 46.2° and 60.8° respectively. The mean maxima for the month was 47.7°, and the mean minima 26.7°. Saturday, the 26th, was the most winterly day we have had the whole season. The wind veered round to the east early in the forenoon, when, about 11 o'clock, it commenced to rain, and at 1 o'clock snow began to fall and continued falling well into the night; but by Monday morning it had all but disappeared. The weather appears now to have changed for the better. If we had only a good rain crops would soon make up the lee-way of March, for since April came in the heat is excessive for so early in the season. The readings are the 1st, 65.9°, 33.3°; 2nd, 68.2°, 25.2°; and 3rd, 68.5°, 30.3°.—G. MCD., *Ravenna Cottage*.

— **COLUMBUS CELEBRATION.**—An international congress of Geographical and Natural Science Societies to celebrate the fourth centenary of the discoveries of Christopher Columbus will be held in Genoa this year. The Italian Botanical Society have, therefore, inaugurated a Botanical International Congress, which will be held from the 4th to the 11th September next. At the time of the Congress the new Botanical Institute, built and presented to the University of Genoa by Commendatore Thomas Hanbury of La Mortala, will be inaugurated, and an exhibition of horticulture and of products exchangeable between America and Italy will be opened. The Italian Botanical Society has,

therefore, the honour of inviting the botanists of every nationality to a general assembly in Genoa in order to communicate and to discuss the latest discoveries and new ideas, and to increase the good feeling amongst scientific men. All inquiries and communications should be addressed to Professor O. Penzig, R. Università, Genoa.

— **GARDENERS' ORPHAN FUND.**—Under the patronage of the Mayor of Kingston and the Mayoress, Alderman G. C. Sherrard, J.P., and Mrs. Sherrard, Alderman Joseph Marsh, J.P., Alderman Bedford Marsh, J.P., Thomas Guilford, Esq., Alderman S.C.C., J. P. Trew, Esq., and H. J. Veitch, Esq., a concert for the benefit of the above charity will be given at the Albany Hall, Kingston-on-Thames, on Wednesday evening, the 20th inst., by the Boston Park Glee Club: Messrs. Sydney Barnby, Wm. Poupert, W. H. Stevenson, J. Poupert, F. E. Meyers, A. S. Ruston, H. Meyers, J. Keates, S. A. Walker, W. W. Walker assisted by Miss M. Marsh, Miss E. M. Dean, and Miss Phillips. Conductor, Mr. Herbert Schartau (of Westminster Abbey).

— **GARDENING APPOINTMENTS.**—Mr. G. Springthorpe, who was six years gardener at Gifford House, Roehampton, has taken charge of the gardens of Wilfred A. Bevan, Esq., Coombe Court, Kingston-on-Thames. Mr. Charles Lovell, kitchen garden foreman under Mr. Crasp at Canford Manor, Wimborne, has been appointed gardener to Mrs. Harrison Wayne, Manor House, Warmborough. Mr. Joseph Liddle, until recently gardener at Holme Grange, Wokingham, as gardener to Lord Raglan, Cefntilla Court, Usk, Monmouthshire.

— **TURNER MEMORIAL PRIZES.**—The following prizes are offered by the Trustees for the present season—viz., a silver cup, value £5, for twelve single Tuberous Begonias in flower, to be exhibited at the Conference on Begonias to be held at the Chiswick Gardens of the Royal Horticultural Society on August 23rd and 24th. A silver cup, value £5, is also offered for nine double Tuberous Begonias in flower on the same date, and at the same place. Further particulars may be obtained from the Royal Horticultural Society's schedule of prizes for 1892. Two silver cups, each of the value of £5, are also offered through the National Dahlia Society at the Exhibition at the Crystal Palace on September 3rd, 1892—one for twenty-four Show and Fancy Dahlias, and the other for twelve bunches of Cactus and decorative Dahlias. The prizes are open to amateurs only. The above four cups will be in the custody of the late Mr. Chas. Turner's family at Slough, and may be seen at the Royal Nurseries there by intending exhibitors.—J. DOUGLAS, *Secretary to the Trustees*.

— **INTERNATIONAL FRUIT EXHIBITION, 1892.**—The schedule of prizes of this Exhibition, which is to take place on the Thames Embankment, and which will be opened on September 28th, is now rapidly approaching completion, and will be issued shortly. It contains several novel and interesting features, among them nurserymen are invited to contribute collections of fruit trees, showing the various types, and also modes of training for different purposes, so as to have an educational value. It is thought desirable to give intimation of this in advance of the issue of the full schedule that nurserymen may make the necessary preparations. Other classes for nurserymen have been arranged as follows:—Collection of trees bearing fruit in pots, with dishes or baskets of hardy fruits artistically arranged on a space 24 feet by 6 feet. Collection of hardy fruits in baskets or dishes arranged on a table 15 feet by 6 feet. Collection of English market fruits, including Tomatoes and Cucumbers, arranged on a table 12 feet by 6 feet. It is intended to award medals in each of the above classes at the discretion of the Judges. The Secretary of the Exhibition is Mr. Richard Dean, Rancragh Road, Ealing, W.

— **CARNATION SOUVENIR DE LA MALMAISON.**—Some time ago one of your correspondents detailed his system of growing Carnation Souvenir de la Malmaison, which was totally different to the way in which they are managed by us. Our plants nearly fill one side of a span-roof house 42 feet long, and vary in age from eight months to ten years. I enclose you two flowers, as samples of what we are constantly cutting. They are perennials. We are never without flowers, although, of course, they are more plentiful in the summer than in winter. I find them greatly appreciated at all times. My employer takes a great interest in these plants, and will be very glad of your opinion of the samples enclosed, and if you think such would be of interest I could send you the details of our practice.—CHAS. PORTSMOUTH. [The blooms are very fine, having broad smooth petals, some 1½ inch in diameter. A note as to the method of treatment would be of interest.]

— THE first annual Exhibition of the WINDSOR, ETON, AND DISTRICT CHRYSANTHEMUM OR HORTICULTURAL SOCIETY will be held on Thursday, November 10th, at Windsor.

— BELL'S DEFIANCE TOMATO.—In reply to Mr. H. T. Eas'y on page 239, I may say that it will not be distributed this spring, but I shall be sending out seeds for next season, of which due notice will be given in your advertising columns.—H. BELL.

— THE grounds surrounding the French building at the Chicago Exposition will be decorated by Messrs. Vilmorin. They have made fine floral displays at all of the World's Fairs for twenty-five years or more, and it is reported that they are now planning to outdo all previous efforts.

— FROST IN DURHAM.—On Monday, 28th ult., our thermometer registered 14° frost; on the 29th, 12°; on the 30th, 20°; and on the morning of the 31st, 14°; bright sunshine prevailed during the day.—A. BENTLEY, *Eshwood Hall*.

— WEATHER AT LIVERPOOL.—Since last writing we have had a week of sunshine—too good, I am afraid, to last. On Saturday last at mid-day the thermometer stood at 65° in the sun, and yesterday at the same time at 67°. The frosts, however, were very severe during the night, as the following will show:—29th, 18°; 30th, 15°; 31st, 16°; April 1st, 24°; 2nd, 22°; 3rd, 24°; 4th, 29°. The roads are thick with dust, and a good steady rain would be of immense benefit.—R. P. R.

— ENGLISH SEEDS AT THE ANTIPODES.—We are informed that "no less than thirteen first-class awards were gained by Messrs. Sutton & Sons, the Queen's seedsmen, Reading, at the Tasmanian Exhibition, a far larger number than has been awarded to any seed house in England on any other part of the world."

— THE STOCKPORT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—Mr. Joseph Hadfield, The Gardens, Manor House, Brinnington, Stockport, the Honorary Secretary of this Society, says his Committee are desirous of being favoured with the rules of existing societies for guidance in revising their own. Perhaps a copy may be obligingly sent to Mr. Hadfield by those Secretaries who may have one to spare.

— FREESIAS.—In reply to Mr. Parrant, page 240, on my treatment of the above, I ought to have said truss instead of spike, a spike consisting of several trusses proceeding from one bulb. I have had as many as twenty-eight flowers on a spike. I still maintain they are more sturdy when grown in the temperature I mentioned, although they will force splendidly. I enclose a skeleton spray of eleven flowers.—G. JORDAN, *Harkstead Rectory Gardens, Ipswich*.

— CARBONATE OF COPPER.—When preparing carbonate of copper by the instructions given in these pages about nine months since, I found the drying process to be the most troublesome part of the business until I thought of putting the deposit into a new plant pot with the hole corked. The moisture quickly percolated through the porous pot, which, being stood on a hot-water pipe, was as quickly evaporated, so that I soon had a perfectly dry powder.—T. S., *Henbury Hill*.

— BRIGHTON SPRING SHOWS.—A correspondent informs us that the show of spring flowers last week was not so large as usual. A newspaper cutting enclosed contains the names of Mr. E. Meachen, gardener to Mrs. Armstrong, Woodslee, Withdean; Messrs. Peed and Sons, Norwood; and Mr. H. Shoesmith, gardener to Mr. Hodgson, Shirley Court, Croydon, as the most successful competitors. The Show of the New Horticultural Society, which closed yesterday (Wednesday) we hear was very successful.

— VIOLET LADY HUME CAMPBELL.—I enclose you half a dozen blooms for your inspection of this variety. It is much like the old Neapolitan in colour, but far more robust, and grows as freely as Count Brazzas or De Parme. The old Neapolitan is a charming Violet, but has been done away with in many places in favour of the stronger-growing sorts.—JOSEPH OLIVER, *Eslington Park*. [We have long regarded Lady Hume Campbell as one of the best Violets, and the blooms received are very large and fragrant.]

— WHITE FLY ON TOMATOES.—I was very much interested in Mr. W. P. Wright's "Thoughts on Tomatoes," especially that part which declares his victory over the white fly. I have been troubled with this pest, and found that Calvert's softsoap (carbolic) entirely destroyed it. Mr. Wright speaks of carbolic soap, which is likely to mislead, as it must be Calvert's carbolic softsoap only. I use 2 ozs. to the gallon of water, and plunge the plants into it; or if too large for that purpose I syringe freely, and the result is most satisfactory.—TOMATO GROWER.

— THE DOUBLE COCOANUT.—At the present time Kew boasts, according to a daily contemporary, of possessing what no other garden in Europe does—a well-grown plant of the Seychelles double Cocanaut, botanically known as *Lodoicea Seychellarum*. The nut itself can frequently be seen in museums, but, with the exception of an attempt in Paris, it hitherto has failed to germinate in Europe. The period of germination is said to extend to two years.

— FORCED TURNIP TOPS.—When living near Liverpool fourteen years since we annually forced the growths from Swede Turnips, as a substitute for Seakale, not having space at command to prepare Seakale roots for forcing. Instead of planting the roots with entire crowns we used to remove the single crowns to induce a greater number of growths. Although these were not quite so large as from entire crowns, serviceable produce was at command at any time during the winter months. By packing the roots in decayed leaves in the Mushroom house, and maintaining a temperature of about 58°, the succulent growth from the Turnips was quickly obtained.—S.

— RAINFALL AT CUCKFIELD, SUSSEX.—The total fall for the past month was 1.23 inch, being 0.85 below the average. The heaviest fall was 0.66 inch, on the 15th. Rain fell on nine days. Total for the quarter 3.19 inches, which is 3.47 inches below the average. Maximum temperature 59°, on the 21st; minimum temperature 18°, on the 9th. Mean maximum 44°, mean minimum 31°, mean temperature 37°. Partial shade readings 2° below the average. Continual frost up till the 15th. Mean temperature of the weeks ending 5th and 12th, 32.7° and 30.4°; while the weeks ending 19th and 26th rose to 41.7° and 43.3° respectively. Fruit trees made but little progress during the month.—R. I.

— DANGER IN OLEANDERS.—Kindly allow me to thank Mr. Colebrooke (page 239) very much for calling my attention to the dangerous properties of the Oleander. It has been grown here for a great number of years, fortunately with no detrimental results. The plants when in bloom are very highly prized, both for the beautiful form and colouring of the flowers. I think if ordinary care is used no more harm would result than by growing the Croton or Stephanotis, the juice of which, if allowed to get into the eye, or into a bruise, will cause the most intense suffering. As regards the perfume emitted tastes differ, as my employer enjoys the almond-like scent. All the same, I am obliged to Mr. Colebrooke for his interesting note of warning.—R. P. R.

— AN interesting feature of the recently issued report of the Carnation and Picotee Union is the collection of replies to a request for notes on the incidence of the season (1891). Mr. Dodwell's preliminary remarks, which are as follows, contain some valuable hints:—"We have a consensus of opinion that it had been one of the most trying to the florist, even of the trying seasons of the recent past. The sunless summer of 1890, followed by the long and severe frosts and fogs of November and December, and January, 1891, and these again by the blizzard of the 9th of March, had wrought a destruction of stock or induced a debilitation without a parallel in the memory of florists of the longest standing; in several cases reported to me resulting in the entire loss of very valuable collections. In my own case, from August, 1890, to May, 1891, our losses were not less than 10,000 plants. Of course the blizzard referred to kept back the plants and the potting for bloom to an abnormally late date; many plants which in the end gave us very satisfactory growth getting no farther than a 3-inch, 4-inch, or 5-inch pot until late in June—indeed, in place of the one-shift system, the normal rule for Carnation growth, we went upon successive shifts, giving the plant additional room only when its ball of soil had been filled with healthy roots. This is a practice I can recommend in the case of all weakly rooted or partially ripened layers. Let the plant have just so much food as it can healthily assimilate whilst it is sweet, bracing and strengthening its root action with the aëration through the sides of the pot (which, however, should be plunged, say, in cocoa-nut fibre), and it speedily gets power of digestion, and so rapid and robust growth. This was our experience, and the experience of Mr. Rowan, and I believe of some other friends, and I rarely remember our stock doing better or making a more healthy, though of course starting with such weakly stools it was in the majority of cases a scanty growth, up to the end of July. Then came storms, a deluge of rain, and a temperature so low, ripened growth was hopeless, hence a large proportion of the layers failed to make root, and I fear we shall again have to face a serious loss. I am glad to believe that our case is, if not singular, more extreme than that of friends in localities more favoured as to subsoil and rainfall."

— PRESENTATION OF A MEDAL TO MR. THISELTON-DYER.—The Director of Kew Gardens, Mr. W. T. Thiselton-Dyer, has become the recipient of a medal awarded to him by the Royal Society of New South Wales. The letter from the Secretary, Mr. W. H. Warren, is as follows:—"With this, under separate cover, I have the pleasure to forward to you the Clarke Memorial Medal, which has been awarded to you by the Council of this Society in recognition of your distinguished services in the cause of botanical science, and especially on account of your labours in connection with the development and organisation of the botanical departments for the Colonies and India at the Royal Gardens, Kew. The Council fully appreciates the beneficial effects which this colony (in common with the other British possessions) has already derived, and will continue to derive, from the foresight and scientific zeal you have displayed in the building up of the Colonial departments of your institution; the Council is also aware of the assistance which the department under your direction has given to institutions in Sydney, and is not unmindful of the fact that the first collections obtained for the Sydney Technological Museum were received from the museum of the Royal Gardens, Kew. The Council trusts that you will, therefore, accept the medal, as a token on the part of this Society of the appreciation in which your work is held in Australia." The above, with Mr. Dyer's reply, which is couched in felicitous terms, appears in the "Kew Bulletin" for March, and the incident is a pleasing one, as testifying to the good feeling that prevails between leading botanists in this country and the Colonies.

— COPPER FUNGICIDE (NOT INSECTICIDE).—Your correspondent "Chemicus" seems to have discovered a mare's nest in my communication, *re* the "Prevention of the Tomato Disease," on page 216. I cannot admit his premises, that I was entirely in error as to the composition I was using. I have re-read my statements in the article alluded to, and find them to be quite correct, and a plain statement of facts as they occurred. The material used was bluestone (sulphate of copper), not sulphate of iron, as your chemist supposes. I also stated that the soda solution caused the sulphur to part from the copper, and to float upon the surface as a thick yellow scum. I readily admit that the chemical term for this scum is not sulphur, and I thank him for informing us that it is subsulphate. I did not state that I made brown carbonate of copper, but that the sediment had the appearance of a thickish brown mud when the water was poured off it. I also further stated that this, when the water had been evaporated from it, formed a dry hard cake of a brownish orange colour. "Chemicus" further informs us that a trace of copper would colour the ammonia. Admitted, it did colour the ammonia a bright blue. I did not mention this in my notes, as it was a matter of no practical consequence.—W. K. W.

— KEEPING CATS FROM GARDENS.—The diagram in the Journal of March 31st, page 249, is good, but I might suggest an improvement—viz., instead of slots to each upright a length of old gas pipe made flat so far down, say 8 inches, to screw on each post, and at the height for the overhanging wire a hole drilled, through which a piece of wire might be run; thus from each post fastened to the wire some 2-inch meshed wirework could be run and fastened along the top of the paling, the same at the bottom of paling, to another wire. Into the barrel of the piping a length of wire with a twist at the outer end could be fixed, the shank dropping down the pipe, another wire run through the loop, and another piece of wirework run along as depicted in the Journal, at the same angle. This is light and inexpensive compared to slots, and has the advantage also of not being easily broken, the whole being elastic. As an old friend to cats, but a decided enemy to vagrant ones, I wish that a tax were placed on each head. In the neighbourhood of London and in London cats are a nuisance. People think nothing of leaving a house, and the cat; consequently should no one take the house at once there is a stray cat living as it can, and the miserable wretches I have seen caught and shot there would, could the owners be found, be fair cases for the R.S.P.C.A. Since I have prevented, one way or the other, the large influx of cats on to my small plot of ground mentioned in the leading article of last week's Journal, I have been able to prevent the soft-billed birds' nests being destroyed. These build in places so accessible to cats that they must diminish, and the wretched sparrow, which takes care to build in your water spout or some inaccessible place, goes comparatively free. Look at the havoc made by these sparrows just now with the Crocuses. I find that they prefer the yellow varieties first, then the white, lastly the purple. Could something be done to impose a tax on cats I should be willing to assist, and subscribe myself—CUTHBERT JOHNSON, *Waldronhyrst, Croydon*.

— CROCUSES of various colours are just now making a fine display in the gardens of Buckingham Palace. They are in abundance around the lake, and on grass in various parts of the grounds. The gardens cover an area of about 40 acres, and for the centre of London are well wooded with fine trees. Crocuses are also blooming freely in Hyde Park and St. James's Park, the clumps on the grass in the latter instance being very attractive.

— PANSIES AT THE CHICAGO EXHIBITION.—Messrs. J. M. Samuels and John Thorpe issue the following appeal for Pansy seed:—"The Department of Horticulture, realising the importance of the Pansy and the prominent position it holds as a spring and summer flowering plant, is desirous of having them displayed to the very best advantage during the early months of the Exposition in 1893. With this end in view the Department solicits donations of seed in order to carry out their plans and show to the vast number of people who will visit the Exposition during these months the immense strides that have been made in the cultivation of this flower during the past few years. Seeds of only the very best varieties are desired in quantities to insure at least 250 plants of each at the time final planting is made. All varieties, such as Emperor William, Beaconsfield, and others that come true to colour, should be separate and the colours marked plainly on each package. Varieties sent in mixture should have marked on them the habit of the plant whether bushy or spreading. Two sowings of each kind will be made, one in July and one in August. All seed should arrive not later than July 1st, 1892, addressed to Department of Horticulture, World's Columbian Exposition, Chicago Ill., U.S.A. Duplicate invoices of varieties will facilitate the work of recording. Those contributing seeds will receive credit for the same by having their names and addresses advertised in connection with the display and in other ways."

— NOTES ON APPLES.—In these days, when so many varieties of Apples are being planted, notes on those which cannot be grown successfully in certain soils are valuable to intending planters as limiting the risk of failure. Blenheim Pippin is perhaps more noted for vagaries than any other. In our strong retentive soil it is a failure, while two miles distant, where the surface soil is sandy and the subsoil a stiff clay, it succeeds admirably, the fruit realising 10s. per bushel. The trees were grafted by a gamekeeper on the Crab stock in the wood and have never been disturbed, and this may account somewhat for the success, as they are now fully established. Dumelow's Seedling grows fairly well, but fails to give a crop of fruit. Lord Burghley does not succeed, although it is a good Apple when in condition. Scarlet Pearmain is an utter failure, which is a pity, as it is a taking variety, the colour is so rich. Kentish Fillbasket, although producing a few fruits in some seasons, has never been a success during the dozen years it has been planted. Alfriston is a mere apology for this grand variety in our heavy land as seen growing in lighter soil, in which it revels. Devonshire Quarrenden commands 7s. and 8s. per bushel in this neighbourhood at the end of August, but here the fruits are poor except in colour. Cox's Orange Pippin, although said to require a warm soil and position, is in our strong ground and high altitude an annual success, which proves that its accommodating nature is considerable.—E. M., *Hants*.

— ANNUAL DINNER OF LONDON MARKET SALESMEN AND GROWERS.—On Tuesday, 29th ult., the second annual dinner of the salesmen and growers connected with the London fruit and vegetable markets took place at the Holborn Restaurant. In spite of the gloomy forebodings of many who were of opinion that no unity of opinion existed to warrant the attempt to establish this annual gathering, the Chairman (Mr. George Coleman) found himself supported by 150 gentlemen, who among them represented all the London markets, from Stratford in the east to Covent Garden in the west, as well as the growers from a large circle around the metropolis. The loyal toasts were drunk with great enthusiasm, and that of "Success to the Trade" was responded to by Mr. Jay, Covent Garden; Mr. Richards, Borough and Farringdon; Mr. J. Lee, Spitalfields; Mr. Webster, Stratford; Mr. J. Peart, King's Cross and Midlands; that of "The Growers" by Messrs. Webb, Wood, and Brown; and "The Visitors" by Mr. Assbee and Mr. Kearsey. The proposition to start a benevolent institution for the trade, which was introduced by Mr. Daniels, was hailed with acclaim, and the kindly feelings of those present were not satisfied until a Provisional Committee was named. The following is the list of the Committee, who are entitled to the thanks of their fellow salesmen:—Messrs. G. Bradley, Roach, John Lee, Joseph Lee, Morris, Richards and Smith, William Taylor, Peart, Jackson, Jay, Coleman, Dennis, E. Coleman, Conder, Osmond, Champion, Saunders, Brookesbank, and R. G. Brown; Hon. Sec. Mr. William Whitehead Cousins.

LILIUM HUMBOLDTI.

THIS Lily when seen in good condition is probably one of the most attractive members of this genus. This is saying a good deal perhaps

giant plant has been seen crowned with its many flowers so telling in the scenery of any garden and so attractive to the on-looker ; and how we all long, when once a good plant has been seen, to do something similar, or even surpass it if such be our good fortune.



FIG. 43.—LILIUM HUMBOLDTI.

when we remember that such a remark applies to a family of bulbous-rooted plants full to overflowing with countless gems resplendent in their richness and unparalleled in their unique beauty and great variety. It is one of those species that linger long in one's memory when once a

Under cultivation *Lilium Humboldtii* is not difficult to manage by any means when once it becomes established, but it certainly is not an easy one to establish. I say this plainly, and I should like to impress the fact on your readers for this reason. Many amateurs in plant culture

are not satisfied unless they can behold some outward sign of life—some recompense for their outlay. A natural desire surely, but applied to Lilies and Lily growing must be soothed over with a little oil of patience. A bulb of the Lily under notice planted with the best care will not make a great show in the first year, and perhaps not the second. Then it is uprooted to know the reason why, hence so many failures with this species. From time to time I have planted some grand bulbs, and in the first year the growths have hardly ventured above ground, so to speak, but I did not lift them, for I knew the growth would improve next year. Of course, like others, I have had my season of fears and doubts, long since lessened by continued experience, and my advice to all planting this Lily, having secured really good bulbs at the start, to exercise plenty of patience afterwards.

In all cases plant dormant bulbs, or such that are well established in pots. If the bulbs are imported they will be more or less shrivelled, and after shaking away sawdust or similar matter from between the scales close the latter carefully to the bulb, and press some sand round about them to keep them in position. Contact with the moist soil will soon remedy this, but where much shrivelled it will be as well to place the bulbs in moist sand for twenty-four hours before planting them finally. The soil best suited for this Lily is one of peat, leaf soil, rough fibrous loam, and some rich charcoal, the three first in equal parts, and a peck of the latter to a barrowful of the mixture. Sharp silver sand may also be used with a liberal hand. Good drainage is an essential detail in Lily culture, so that the copious supplies of moisture at the right season may pass off freely.

Soils that are naturally much drained are assisted by the free use of sandstone as a moisture-retaining agent. Cover the bulbs in planting quite 6 inches deep, laying them flat on the soil. The number of flowers usually obtained from a good specimen is from six to twelve, but it is capable of producing thrice that number, and attaining a height of 5 feet. The colour of the flowers is rich reddish-orange, the segments being freely veined with purple; while the variety *ocellatum* has a yellow perianth, freely dotted with purple. Plant in a sheltered spot, protected from hot sun, and either by small sandstone chips or loose litter cover the surface to stay evaporation. This and other Lilies succeed on lower parts of Rhododendron banks, where they get the necessary moisture, while the numerous fibrous roots of the shrubs appear to supply the requisite drainage to a nicety.—J. H. E.

FEEDING VINES.

THE question of Vine feeding is one uppermost in the minds of many Journal readers at the present time, and I hope other practical men will follow your correspondent "G. A." in giving us the benefit of their experience and opinions on manures, liquid and artificial, as beneficial to Vines, both in indoor and outside borders. Many, like myself, have little opportunity of experimenting with different kinds of manures, because they are not provided for experimental or practical purposes. Liquid manures, I presume, most growers can obtain in some form or other, though in many cases they have to be prepared by soaking, usually in small quantities in a tub or any other vessel available. For extensive Vine borders this would entail a good deal of work in the necessary frequent changes, because large quantities cannot be drawn from such sources of uniform strength. It must be a positive gain to be able to apply light dressings of some suitable artificial as an alternative change to natural liquid manures. True it is that fine produce is every year grown without incurring expense for artificials, but soils and surroundings have such varying influences that it would be an immense gain if we were more enlightened in the subject of chemistry as bearing on the art of cultivation.

There is, I think, no doubt existing as to the value of house slops or urine for Vines when used with caution; but after fermenting, as I suppose it should always be allowed to do, the odour arising from such is far from pleasant to many persons. Others are never better pleased than when they can detect the presence of stored liquid immediately on entering the vinery or any other structure, except, of course, the conservatory. The drainings from the cow yard give off a vapour that is agreeable rather than otherwise, and I always think a house charged with such must be beneficial to the inmates growing therein, and sometimes attendants too. As a subordinate I was looked upon as being fond of using manures possessed of strong scent, and liquid manures I consider are not of much value unless they possess this quality.

Fish manures I have always formed a high opinion of for Vines, and there would appear to be corroboration in the case of the Messrs. Colebrook's remarkable success in Grape growing, for I notice "fish heads" are used in rather large proportions to that of soil. I have seen excellent results in Grape growing follow the use of Jensen's manure. Those who have turf in any quantity at their disposal to apply to the surface of the border annually can be independent to some extent of manures in any form, but there are few places where this is a standing privilege.

Abundant opportunity is offered in the present day for feeding Vines with chemical productions, manufacturers being so numerous, and their goods equally varied, that by employing the preparations of, say, two or three vendors, and supplying them as alternate dressings, a perfect condition as regards the food contained in the border ought to be pretty easily accomplished. Is it possible under ordinary circumstances for 4 ozs. per square yard of any formula given three times during the year to be sufficient? I scarcely think so, although I cannot pose as an authority. This is what "G. A." advises, and perhaps he does so on practical grounds, but I am persuaded larger quantities are given than this in most places where first-class Grapes are grown, unless there is a store of natural manure to draw upon as extras.

Some growers lay great stress on the value of an ammonia-charged atmosphere, believing such vapours are absorbed by the foliage, and tend at the same time to hold in abeyance insect enemies. The latter theory I have not much faith in, neither red spider nor thrips have I ever yet found to be affected by an ammonia-charged atmosphere. The feeding of Vines through the foliage, and independent of their roots, is a subject on which some of the experienced contributors of the Journal might favour us younger readers with some practical information, none of whom will appreciate it more than—W. S., *Somerset*.

INTERNATIONAL HORTICULTURAL EXHIBITION.

THE schedule of prizes and arrangements for the special shows, together with a plan of the buildings and grounds at Earl's Court, which have just been issued, affords an opportunity for further reference to the above Exhibition. As previously announced, the Exhibition, which, it is anticipated, will surpass anything of the kind yet held, will be opened on May 7th, and will remain open until the end of October. Everything that is possible or likely to make the Exhibition interesting and instructive is being done, and it only needs the co-operation of horticulturists, as well as the general public, to render the undertaking a success.

Apart from other features the contents of the main building are calculated to prove attractive to visitors. This huge structure covers an area of about 6 acres, the greater portion of which will be devoted to displays of seeds, models of greenhouses, conservatories, heating apparatus, pottery—everything in fact connected with horticulture. Near to the West Brompton entrance from Richmond Road a grotto is being made, as also is a similar one in the centre of the building. These will be planted with Ferns and choice foliage plants, over which fountains, brilliantly lighted with electricity at night, will play continually. New and rare plants will be grouped near the main entrance, and on each side considerable space is to be devoted to picture galleries and statuary. At the farthest end of the building, leading to the grounds, more than an acre is charmingly laid out as a garden under cover. A plan of this, issued with the schedule already referred to, shows that great ingenuity has been brought to bear upon the subject, and on a recent visit we noticed that rapid progress is being made with the work. By undulating the surface, and cleverly curving the numerous walks, the space occupied by this novel garden appears much larger than it really is, and the scene is rendered even more delusive by the skilful manipulation of the landscape artist. The beds, which are laid out in turf, in this under-cover garden are to be filled with sub-tropical plants of a choice nature, and, we were informed, will be changed monthly.

The outside grounds, which have been re-modelled under the direction of Mr. H. E. Milner, will also be exceedingly interesting and attractive, especially in fine weather. Examples of gardens of various kinds, ancient and modern, are being formed, and representations of the Tea Gardens of China and Ceylon will prove a novel and attractive feature. A model cottage garden and allotment ground will also be shown, and probably examples of continental *petite culture* will likewise be represented. Lectures and demonstrations in practical and theoretical gardening will be given regularly, in addition to numerous other features, which cannot fail to be of interest to everyone connected, directly or indirectly, with horticulture.

With reference to the special shows, to be held periodically during the summer, the first takes place on May 27th and 28th. This will be devoted chiefly to groups and collections of flowering and foliage plants and Orchids, cut flowers, fresh fruit and vegetables, and preserved fruit and vegetables. A liberal schedule for this Show has been prepared, and it should be one of the best Exhibitions of the year. No less than fifty-eight classes are provided for Orchids, stove and greenhouse and hardy plants; seven for collections of cut flowers, which include Roses, Ixias, Sparaxis, Tulips, Rhododendrons, &c.; eighteen for fresh fruits and vegetables; and nine for preserved fruits and vegetables. In addition to the prizes medals will be awarded in the leading classes. The other Shows will be held as follows:—"Roses, Table Decorations, &c.," July 5th and 6th; "Carnations, &c., and Cottage Garden Produce," August 1st, 2nd, and 3rd; "Autumn Flowers, &c.," September 9th and 10th; "Hardy Fruit, &c.," October 5th, 6th, and 7th; "Trees and Shrubs, &c.," October 26th, 27th, and 28th. All inquiries regarding exhibits should be addressed "The Secretary, International Horticultural Exhibition, Earl's Court, London, S.W."

The following gentlemen comprise the General Committee:—*Mr. H. E. Milner, F.L.S., C.E., 7, Victoria Street, S.W., Chairman; and Messrs. R. Ballantine, 7, Distaff Lane, Cannon Street, E.C.; W. Bennett,

Rangemore Gardens, Burton-on-Trent; P. Barr, 12, King Street, Covent Garden; P. Blair, Trentham Gardens, Stoke-on-Trent; W. Bull, King's Road, Chelsea, S.W.; W. Burden, Bagshot Park, Bagshot; H. Cannell, Swanley; H. T. Cutbush, The Nurseries, Highgate; R. Dean, Ranelagh Road, Ealing; J. Douglas, Great Gearies, Ilford; E. O. Greening, 186, Creek Road, Deptford; G. Gordon, 1, Priory Park, Kew; H. Herbst, Kew Road, Richmond; J. Hudson, Gunnersbury House, Acton; E. Hill, Tring Park, Tring; W. Iggulden, Marston House, Frome; J. Jennings, Ascott, Leighton Buzzard; John Lee, 78, Warwick Gardens, Kensington; Wm. Lee, Royal Vineyard Nursery, Hammersmith, W.; F. Q. Lane, Great Berkhamstead; D. P. Laird, 17, South Frederick Street, Edinburgh; J. McIndoe, Hutton Hall, Guisborough, Yorks; *W. Marshall, Auchenraith, Bexley; A. McKellar, Sandringham, King's Lynn; G. T. Miles, Wycombe Abbey, High Wycombe; G. Monro, Covent Garden, W.C.; W. Paul, F.L.S., Waltham Cross, N.; H. M. Pollett, Fernside, Bickley; G. Phippen, Victoria Nursery, Reading; *J. Smith, Mentmore, Leighton Buzzard; A. Turner, Royal Nursery, Slough; *H. Turner, Royal Nursery, Slough; *H. Williams, F.L.S., Upper Holloway, N.; W. H. Williams, The Nurseries, Salisbury; J. Wright, 171, Fleet Street, E.C.; B. Wynne, 1, Clement's Inn, Strand, W.C.; and *G. Wythes, Syon House, Brentford, W. Mr. G. A. Loveday, B.A., is the Secretary. Those marked with an * are members of the Executive Committee.



ROSE SHOW FIXTURES IN 1892.

- June 21 (Tuesday).—Westminster (N.R.S.).
 " 28 (Tuesday).—Maidstone.
 " 29 (Wednesday).—Brighton*, Farningham, Ipswich, and Windsor.
 " 30 (Thursday).—Canterbury, Eltham, and Winchester.
 July 1 (Friday).—Brockham.
 " 2 (Saturday).—Crystal Palace (N.R.S.).
 " 5 (Tuesday).—Bagshot, Diss, Earl's Court*, Gloucester, and Sutton.
 " 6 (Wednesday).—Croydon and Hitchin.
 " 7 (Thursday).—Bath, Lee*, Norwich, and Woodbridge.
 " 9 (Saturday).—Reigate.
 " 12 (Tuesday).—Hereford and Wolverhampton.†
 " 14 (Thursday).—Chester (N.R.S.), and Helensburgh.
 " 21 (Thursday).—Trentham and Worksop.
 " 23 (Saturday).—Bedale and New Brighton.
 " 28 (Thursday).—Southwell.
 " 30 (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.

I shall be glad to receive the dates of other Rose Shows for insertion in the next list, which will appear early in May.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

REINE MARIE HENRIETTE.

MR. G. BUNYARD sends a box of the "red Gloire de Dijon," the blooms exhibiting this valuable Rose in its best condition. The excellent form of the half-opened flowers and the rich lustrous colour are strikingly shown, the foliage, too, being large and well coloured. It is grown in a house with *Maréchal Niel*, sharing exactly the same conditions as this popular variety, and proving to be a valuable companion to it, being equally free-flowering and beautiful. A plant in a 50 feet house now carries over a thousand blooms.

MULCHING NEWLY PLANTED ROSES.

THE value of mulching newly planted Rose trees, and particularly those that were put out late, can scarcely be over-estimated, and yet many persons fail to recognise the importance of this operation. The dry weather which prevails at the time of writing is very trying to trees of all kinds that have been recently planted, and especially so to Roses. If not already done, therefore, it will be wise to place a mulching of half-decayed manure for the distance of 2 or 3 feet around trees, taking care, however, that the stems are kept clear. When the Roses are planted in beds the whole surface of the latter may be advantageously mulched as soon as pruning is completed.—WORKER.

FORTUNE'S YELLOW ROSE.

FOR producing a large number of blooms useful for various decorative purposes, this is one of the best Roses with which I am acquainted, but it does not appear to be grown so extensively as one might expect. If grown in an ordinary greenhouse it generally comes into flower about the present time, and the blooms are most useful in the bud state, or not more than half expanded. Those which have come under my notice were not, however, as the uninitiated might infer from the name, of a clear yellow colour, but more of a reddish buff shade. Nevertheless, the blooms, as has been said, are exceedingly useful, and it is a variety well worth a place in every garden. One of the best examples of it I have seen was at Howick Hall, Northumberland, some years ago, where Mr. D. Inglis manages to flower it remarkably well.—T. C.

IS THE MARÉCHAL NIEL A PROFITABLE ROSE?

THE majority of private gardeners, I anticipate, would give an affirmative reply to the above query, but a few perhaps will prove exceptions to the rule. That the *Maréchal Niel* is deserving of the popularity it enjoys everyone will admit, the huge golden flowers being exceedingly beautiful at this time of the year. But as a market Rose I do not think it is deemed a profitable one. Last spring I heard a large grower remark that he could not obtain a penny each for his blooms in the London markets, and possibly many more had a similar experience. White Tea Roses, on the other hand, especially early in the spring, always realise a good price, and in many market gardens these are grown to the exclusion of the yellow kinds. What is the opinion of your readers in regard to growing the *Maréchal Niel* for profit?—ROSA.

LA FRANCE FROM CUTTINGS.

HEREWITH I enclose four blooms of *La France* Roses which I should like your opinion of through the Journal. They are from plants or cuttings which I put in on an outside border a year last autumn. I have about two dozen plants of them, all *La France*, and I have cut on an average four such blooms as I have sent to you. I think you will agree with me that they are not so bad from North Yorkshire. I put in another batch of mixed H.P. Rose cuttings last autumn, and a good per-centage of them have struck, and I think will make nice young plants for next spring. If they do well I hope to send you a larger quantity up next year.—TYKE.

[The blooms were very fine indeed, and afforded a striking proof of what may be done with own-root Roses.]

PLANTING STRAWBERRIES.

It is not always practicable to form and plant Strawberry quarters in August or the following weeks. The present time affords an admirable opportunity for the work. Runners placed 6 or 8 inches apart in the autumn in nursery beds will lift now with abundance of roots. They may thus be transferred to permanent positions without any loss of fibres, and if not allowed to lay about to become dry they will commence growth immediately, and soon be nearly equal to those established the previous autumn. It is hardly to be expected, however, that Strawberries planted in spring should bear a crop the first summer, except plants that have been exceptionally well prepared close at hand. Over-cropping the first year in any case is not advisable. Rather seek for sturdy growth, well nourished bold crowns indicating a certainty of full returns the second year.

Strawberries require rich yet firm ground. Richness induces vigour, firmness consolidates it. Dig deeply, adding half-decayed manure moderately, but incorporate it well with the soil. Before planting in light ground tread it firmly when dry. Heavy ground will not need it. A few new varieties or standard kinds not hitherto grown may be obtained and planted for the purpose of proving their adaptability to the soil. These can be planted twice as close as they will ultimately require to be left. The proper distances between the rows of Strawberries varies with the varieties. From 24 inches to 36 inches in some cases is allowed, and from 18 inches to 30 inches between the plants in the rows. The greater distances of course are for strong growers, of which Sir Joseph Paxton is a type. Varieties with small foliage may be planted at the lesser distances.

Strawberries newly planted will be benefited by a light mulch of half-decayed manure between the plants, but established plants need a good dressing of comparatively fresh manure, the virtues of which have not been unduly wasted, so that they may be washed down to the roots by spring rains. Previous to the application of such surface dressings established beds may have a sprinkling of soot and lime round each stool to reach slugs and grubs which find a snug resting place there. After the severe weather experienced a considerable amount of old and withered foliage also needs removal before manuring the ground. This is more apparent near towns than in rural districts.—E. D. S.

ROOF HEATING.

I SEE that you refer to the vineries under my charge in your leader of March 31st, at least the case is on all fours with our situation and the Vines so quoted. I am bound to admit that the want of heat close to the roof is most plainly exemplified. The vineries are 84 feet long, divided into three compartments—early, Muscat, and a late house. In the two former there is a wonderful falling off, not only in the crop of fruit near the top of the structure, but in the colour of the foliage as compared with that lower down the canes and nearer the hot-water pipes on the border with which the vinery is well supplied.

The vineries are lofty, much exposed to cutting winds from the north-east, and not being wind-proof in the ridge where the hip-roof joins, the Vines in that part of the house are growing in a temperature many degrees below that on the lower part of the Vines. The result of such treatment is apparent in the loss of crop and colour of the foliage. The late vinery affords a striking proof of this, because the time when the Vines in this part are in bloom the season is further advanced, the sun has more power, and east winds are not so prevalent; in consequence the fruit crop is more equal and the foliage of a more uniform colour throughout. The difficulty in fixing pipes under the

roof in this case is caused by the fact of the supply cistern being so much lower than the point alluded to in the vineries, nor is there any possibility of arranging it in any other manner, because the ridge of the vineries is higher than any other part, except, of course, the chimney, and to fix the supply cistern alongside of that would render the filling of it impracticable, otherwise I am convinced that additional heat near the roof would result in a more uniform crop of Grapes.—OBSERVER.

[Our correspondent is correct in his assumption. We did allude to the vineries in his charge, and, unlike the majority of gardeners, he grows splendid Grapes, except towards the top of the Vines. If he cannot raise the feed cistern to the requisite height, perhaps he might manage to cover the northern "hip," if it serves no other purpose than chilling the Vines and preventing them doing their duty.]

EDUCATION IN GARDENING.

SUCCESSFUL competitors for the silver medals (as illustrated on page 225) will surely feel proud of the prize gained. I look upon the issuing of those medals as a grand idea, for I believe they will influence many young gardeners to take up their pens who hitherto have not done so. Of course there are men who believe in keeping all they know to themselves, and those sort of persons generally have an idea that they are endowed with more knowledge than their neighbours, and they neither wish to instruct nor to be instructed. They are really so shallow-minded that they cannot see the benefits that may be derived from writing and reading essays on practical gardening. Writing impresses thoughts on the mind to be remembered in the future, which otherwise would be forgotten. It also teaches a person to quickly collect his ideas and express them in a short, correct, yet comprehensive manner, which is very essential when speaking; and besides all this, it improves the writer in the often important duty of correspondence. Many a young man is able to instruct on certain points those who have served a longer period. I have learned a great deal from young men under me, and they may teach others if they will through the columns of the *Journal of Horticulture*.—S. S.

FACTS ABOUT GRAVEL WALKS.

ON page 240 "R. L." in his endeavour to exhibit literary smartness, has quite forgotten, or seen fit to totally ignore, the conditions under which I advocated the turning of gravel walks. The task before me in replying to him is, however, so easy that I shall require to do but little else than remind him of a few facts he has overlooked. Here they are. It is quite possible to have gravel walks well made in the first instance and spoil them after by adding bad or improperly prepared gravel. When a walk is covered with moss and minute weeds, as they sometimes are in unfrequented parts of the grounds, it is true economy to give a dressing of weed-killer before turning the gravel. It is also important that all walks be made fresh and bright during the spring months. This can only be accomplished by giving them fresh gravel or by turning that already on the surface of the walk, and I have yet to learn that true economy consists in buying expensive gravel, carting it many miles, to pile upon a walk when there is already plenty there which may be made perfectly clean and bright by treating as I recently described. "R. L." may hold strong ideas on the progress of present times, but he betrays a want of practical knowledge concerning garden walks when he fears the turning of the gravel would bring a fresh crop of weeds to the surface.—H. DUNKIN.

ORCHARD PLANTING.

I AM much obliged to Mr. Molyneux for his friendly criticism on page 196, also for his practical suggestions. Although I did not explain my practice as fully as I might have done on page 160, yet it is very similar to his own. I am aware I gave too many varieties for novices, but I was not thinking of that class of persons when I wrote. I wished to record the fact of the varieties named doing well with me out of various others tried. I have made a special study of hardy fruit culture. The soil where my trees are planted is a retentive loam 15 inches deep, but good for fruit trees, then a mixture of soil and small stones on beds of a very hard kind of limestone running down very sharply to the east. Only those who know the Monmouthshire valleys can form any idea of the diverse forms the ground takes in a small area, hence my mistake in not fully explaining the planting 6 inches below the surface. The ground slopes so sharply that this is necessary, or the roots on one side would be almost out of the ground. I always prepare a mixture of chopped turf, lime rubbish, burnt refuse, and decayed vegetable soil previous to planting, which is placed round the roots, and when the planting is finished the trees appear as if on mounds 15 inches above the level. Experience gained on the spot can alone teach anyone the best method of planting in their respective districts. We have also to stake securely to prevent trees being blown down by the violent south-west hurricanes from the Channel. When going to Newport, a distance of thirteen miles, I saw hundreds of Apple trees that had been blown down by the late gales, while some of the orchards ought to have been down before.

There is necessity for teaching how and what to plant. I saw some newly planted trees bought at a cheap rate in public markets, no one knows of what sorts. I advised the people to be careful and plant only

good varieties from approved sources. I recommend early and late sorts for market, and as few as possible, so as to avoid having Apples on hand when the Americans send their large supplies, and so bring down the price of home-grown fruit. It is necessary also to know something of cider sorts, as you will be very quickly asked about here, What about making some good cider?

The sorts for cooking I recommend are Lord Grosvenor, Domino, Duchess of Oldenburg, Ecklinville, Warner's King, Hawthornden, Cellini, Cox's Pomona, Niton House, Baumann's Red Reinette, Tom Putt, and Norfolk Beefing. The latter keeps sound till July, and here, as most Apples are, is of high colour, firm in the flesh, and is now being hunted up by dealers at 3d. per lb. The above have never failed me in cropping. For dessert Mr. Gladstone, Irish Peach, Red Astrachan, Beauty of Bath, Worcester Pearmain, King of the Pippins, Cox's Orange Pippin, Mannington's Pearmain, Kedleston Pippin, Adams' Pearmain, Rosemary Russet, and Sturmer Pippin. I think few persons can take exception to the varieties named either for market or private use, as if you want to sell you must have sound fruit of good colour.—JOHN CHINNERY.

HOLLYHOCK DIFFICULTIES.

THREE or four years back I started a fancy for the cultivation of the Hollyhock. Commencing with about two dozen varieties, and my soil appeared to suit them well, the flowers coming very good, I have yearly added choice varieties to my collection, but confess I am a bad hand at propagating them, and the last two years continually losing expensive sorts through disease or not knowing the proper way of wintering them. I have also had my plants badly infested with a yellow fungus attacking both leaves and stems, very similar to that I have noticed on the Roses in some seasons. Last year the under side of the leaves were covered with white spots, and then they shrivel and drop. I should be obliged if any Hollyhock grower who may read of my misfortunes will advise me (in the *Journal*) as to the best way and time for propagating, and how to deal with these pests. I keep the plants in a cold frame in winter, and many old roots remain where planted the previous year, and apparently do as well as those taken more care of. The Hollyhock I consider next to the Dahlia as an autumn exhibition flower; but what poor encouragement is given for their cultivation by some horticultural societies. For instance, in the Taunton schedule for this year a first prize of 5s. is offered for twelve blooms (poor encouragement indeed). The marvellous blooms we used to see a quarter of a century ago I believe can be produced again if better prizes were offered by committees of show societies. To be able to exhibit a dozen good blooms an amateur must grow at least twenty-four named varieties, and these will cost 18s. to 30s. per dozen, and then the uncertainty of being able to keep them through the winter for another season. I trust committees of horticultural societies will in future give more notice to the Hollyhock, that growers may be induced to take up the cultivation of this old favourite, which is both an ornament to the garden of the mansion and the cottage.—THOS. HOBBS, *Bristol*.

OUTDOOR PEACHES.

I SHOULD not have troubled you on this subject again had it not been for a statement made by "Pomologist" (page 196) respecting fruit for exhibition. I think the sooner he either withdraws that statement or names the exhibitors to whom he alludes the better. With respect to "Nous Verrons" note as to my argument, no one said that Mr. Iggulden's exhibits were from the trees moved. Surely he has other trees to exhibit from. I believe that "Nous Verrons" is a supporter of the new ideas, as I see he has been at the roots himself. If I knew his address I might pay him a visit.—JOHN CHINNERY.

I SEE by the *Journal* to-day that Mr. Young has made a kind of reply to my critique a fortnight ago. His article does not appear to me to contain anything of importance, and it would be useless to carry on the discussion unless fresh points are raised, as it would only amount to more repetition. I would willingly reply if I thought it would be of any benefit to readers. When the time comes I will send a sample of Peaches to the Editor which have not been grown in Fleet Street, and if Messrs. Chinnery, Young, and Iggulden will do the same the authorities there can note the character of the different consignments and publish the results.—NOUS VERRONS.

SUCCESS WITH ONIONS—PREVENTING THE MAGGOT.

ON page 213 Mr. John Chinnery has a very practical article on the growing of Onions. There are a few more items that I thought would not be out of place, and foremost is the Onion fly (*Anthonomya ceparum*), which causes what is called the Onion maggot. It is well known that this is often very destructive, particularly on light sandy soils. First class culture will certainly do a great deal towards good crops, but good culture is not everything in all districts.

I have found petroleum at the rate of 1 oz. of the oil to a gallon of water, kept thoroughly agitated, one syringeful forced into the utensil, and the next on the plant, of great service. As the Onions become stronger 1½ oz. of oil per gallon may be used. The end of April or early in May is the time to commence operations. It is much better to keep the fly off the plants than to try and arrest the mischief when

the leaves are turning yellow through the maggot. If the Onions are syringed about once a week the fly will not be able to do much damage to the crop.

A little gas lime sprinkled between the rows, about half a pound per square yard, not to be allowed near the plants, acts as a deterrent to the fly. Soot is also a preventive, as well as a good stimulant. Apply early as with the oil, and repeat as often as possible. Nitrate of soda is valuable for Onions, applying two or three ounces to the square yard, at three different times, in showery weather. It is a good plan to keep the soil firm near the plants. After the middle of July the fly will not give much more trouble.

Your correspondent mentioned tying the Onions in bunches of seven or eight for winter use. If he had a large quantity to store in that way I think he would require a large amount of wall space. Why not rope the Onions? A stone or two take up little space. Cranston's Excelsior and Ailsa Craig are good varieties for exhibition.—F. C.

FORCING DWARF BEANS.

How seldom do we see this delicious vegetable forced in a satisfactory manner. The plants are generally grown in pots, and are much too crowded to give good results. I will describe the treatment I have found best suited for the purpose of bringing the pods to perfection for use. The Beans are sown in 4-inch pots and plunged in cocoa fibre refuse in a warm house; temperature 65° to 70°. During this time the plants are becoming established, which is from twelve to fourteen days. A hotbed is prepared of leaves and manure. This is covered with old potting soil in which the Beans are to be planted. This is done in a slanting manner, so that the roots are not buried too deeply, yet the stems are covered with soil. The plants are grown as near the glass as possible to keep them sturdy, and are supplied with warm water as needed. As the growth advances small stakes are employed to keep the plants upright. A little air is admitted on bright days, and the syringe is freely used both night and morning. We are now gathering Beans daily, of which I send sample. We planted on February 22nd and gathered March 24th.

I strongly recommend those who have not adopted this method to give it a trial, and with proper attention good results will follow. I chiefly grow *Ne Plus Ultra* for forcing.—W. HUNT, *Shrover Hall*.

[The pods received were good in size, colour, and quality; the leaves robust, and of a deep green hue, free from any trace of red spider.]

LAPEYROUSIA.

IN this genus we seem to lose the prevailing characters of the Irid family, at least as regards their general aspect. In the place of a perianth with the inner and outer series of divisions differing considerably in appearance, the petals and sepals are similar in form, colour, and direction. This imparts a most distinctive effect to the flowers; and a casual observer would scarcely suspect them to be allies of the Irises. Though the flowers are smaller than those of many others in the order, they are brightly coloured in some forms, and are produced in sufficient numbers to render them equally as attractive and pleasing as many of more pretensions. Seventeen or eighteen species are known, but few are in cultivation, and to these the preceding remarks chiefly apply, as, judging by figures that have been published, some are far from ornamental either in form or colouring. They are all natives of the Cape, with small bulbs, and bearing racemes or corymbs of flowers in spring—May and onwards. They are best grown in the cool house, though *L. corymbosa* is occasionally grown outside in warm sheltered positions.

Probably the latter is the most widely known species, and either under the names of *Ixia* or *Ovieda* it may be found in many collections both in England and on the continent. This is partly due to its own attractions, and partly to the fact that it has been longest in cultivation. It is one among the numerous plants discovered by Thunberg at the Cape of Good Hope, where it was chiefly found in sandy positions in Swartland, and subsequently introduced a few years before the close of the eighteenth century. The specific name was applied in reference to the inflorescence, which is corymbose in form—a good distinguishing mark, as in most of the others it is spicate or racemose. The flowers are composed of six ovate segments, bright blue in colour, with a white and dark blue-angled band encircling the central portion of the flower, and near the base of the segments. The angles are acute, and extend about half the length of the petals, thus giving a peculiar star-like appearance to the flowers. These are clustered on lax slender stems, the leaves being very narrow and tapering. The woodcut (fig. 44) conveys a fair idea of a corymb of the flowers. This form varies considerably in the depth of the colouring, and it is said there is a variety with fine white flowers.

As an example of a distinct section of the genus, and one which is scarcely represented in gardens, *L. fissifolia* deserves a few words of

description. It rarely exceeds 7 or 8 inches in height, with tapering stem-clasping leaves, which towards the upper part of the stem become small, much like foliaceous bracts. The flowers are produced from the axils of the leaves, chiefly near the apex of the stem; they have very narrow tubes, 2 inches or more in length, expanding into six small ovate lobes, varying in colour from very pale pink to bright rose. They are also pleasantly fragrant—a quality the first-named species does not possess—and they are remarkable for their brittleness. It is a delicate



FIG. 44.—LAPEYROUSIA CORYMBOSA.

little plant, far from imposing, yet pretty, and well deserves a place in a collection of Cape bulbs. It is still in cultivation in a few gardens, but it is rarely seen, which is to be regretted, as many less interesting plants have been preserved and hold a place in gardens. Bulbs were introduced by Messrs. Lee & Kennedy in 1809, and an excellent coloured figure was published in the "Botanical Magazine" of the same year.



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest House*.—The very early varieties, Alexander and Waterloo, are often confounded with each other, but are distinct. Alexander was raised in Illinois, U.S.A., and is widely grown in America as the best early variety. "Fruit medium to large, greenish white, nearly covered with deep red; flesh firm, juicy and sweet, bears transportation well; pit (stone) partly free." Waterloo was raised in New York State, U.S.A., "Fruit medium to large, round; pale green, marbled with red; flesh adhering to pit (stone), greenish white, juicy, vinous." Early Beatrice is evidently of this race, and

partly adheres to the stone; the fruit is smaller than either of the preceding, but is handsome and of good quality, ripening several days after Alexander. These, with Advance Nectarine, should be grown in a house by themselves, so that when the stoning is completed, as it now is, the fruit may be accelerated in ripening by an increased temperature, but it is not advisable to exceed 65° at night or 70° to 75° by day from fire heat, because the growths are liable to become attenuated when the atmosphere is warm, moist and close. It is different under sun heat, as evaporation is going on and assimilation taking place to a much larger extent; therefore the temperature may be kept through the day at 75° to 85° from sun heat, ventilating at the top of the house at 75°, and opening the front at 80°, so as to secure a circulation. It is a good plan to leave a chink of air at the top of the house constantly. Close the house at 80°, and sufficiently early to allow of a rise to 85° or 90°, the trees being well syringed and surfaces well damped so as to secure atmospheric moisture, which will cause the fruit to swell to a great size, Alexander and Waterloo reaching 10 inches in circumference. Employ clear rain water, and have the fruit dry before nightfall. Syringing the trees must cease directly the fruits commence ripening, otherwise their skins may become rough or cracked, and then they are spoiled in appearance and have a musty flavour when ripe. A genial condition of the atmosphere should be maintained for the benefit of the foliage by damping available surfaces twice a day and keeping the mulching or border surface thoroughly moist.

The varieties Hale's Early, A Bec, Early Alfred, and Rivers' Early York, which are of the same race, started at the same time as Alexander and Waterloo, have scarcely finished stoning, and they must not have a temperature exceeding 60° to 65° at night, and 70° to 75° by day with gleams of sun. Allow 5° to 10° more from sun heat, and a free circulation of air. Stirling Castle, Royal George, and Crimson Galande are still later in stoning; therefore, when a number of varieties are grown in the same house the temperature must be regulated so as to suit the later varieties. All points considered, there is no Peach to equal Royal George for forcing, though some prefer Stirling Castle. These are six weeks behind Alexander in ripening in the same house. Pay particular attention to the watering; keep the surface of the borders mulched with sweet, rather lumpy manure, not more than a couple of inches thick, and afford liquid manure where necessary, but avoid encouraging sappy growths by excessive and needless supplies. Stop or remove all gross shoots before they have time to draw the supplies of sap from the weaker parts of the tree; but allow leading shoots, particularly of young trees, to extend over uncovered parts of the trellis, pinching out their points when the fruit begin to take the last swelling, or they may be left their full length when sturdy and short-jointed. Remove the leaves over or in front of the fruit, and turn the latter up to the light by thin laths placed across the trellis, with the apex pointing in the direction of the most light, so that the colour may be there most pronounced and the fruit highly flavoured.

Trees Started at the New Year.—The prolonged cold weather experienced in March retarded the crop considerably; nevertheless the days have been sunny and the fruit is advancing, the disbudding completed, and the shoots that are to succeed those now fruiting have been laid in. In performing the latter care must be taken to leave plenty of room in the ties, and it is not a good plan to keep the shoots very closely tied down for some time yet. No more growths should be allowed to remain than are necessary for next year's fruiting, the extension of the trees, or for attracting the sap to the fruit. Gross shoots are best removed, as they appropriate more than a fair share of sap, often falling a prey to gum, and it is highly important to maintain equal vigour through the branches of the tree. Laterals should be pinched at the first leaf. Shoots retained to attract the sap to the fruit ought to be stopped in the first instance at three or four joints of growth. Endeavour to provide an equal distribution of foliage that will shade and protect the strong wood from the direct rays of the sun as the season advances, as they are liable to become sunburnt or dried, and the channels that convey the sap are thus contracted. Avoid overcrowding the foliage, not permitting more shoots to be made than can have full exposure to light and air. Admit air early, but carefully, avoiding depressions of temperature and cold currents of air. Thin the fruits where too thick, not overdoing it. With the trees in good health, and not over-luxuriant, the prospect of stoning a full crop of fruit is more likely than when the trees are overburdened, whilst deferring thinning only takes so much size from those fruits that are ultimately allowed to remain for the crop. Inside borders must be duly watered, and may be mulched with short, sweet stable manure, but not too fresh nor too thick.

Trees Started Early in February.—Disbudding must be attended to frequently, commencing with the strongest parts of the trees, reserving a shoot at the base of the current year's bearing shoots. A growth on a level with or above the fruit must also be reserved on each bearing shoot, and be pinched at three or four joints, leaving no more extensions than are necessary for furnishing the trees with branches, which should be 12 to 15 inches apart. On last year's extension branches the growths for next year's bearing should be left 15 to 18 inches apart. Attend to thinning the fruit, removing the worst placed, reserving a few more only than will be required for the crop. One fruit to every square foot of trellis covered by the tree is ample, but vigorous trees may have the fruit left a little closer, and weakly trees be correspondingly thinned.

Syringe early on fine mornings, admit a little air shortly afterwards, gradually increasing the ventilation with the sun's heat, and syringe the

trees again about 3 P.M., closing the house so as to insure a rise from sun heat.

Trees Started Early in March.—These are now out of bloom, and should be closely scrutinised for aphides; if any are observed fumigation may be had recourse to on two or three consecutive evenings. Care, however, must be exercised in fumigating Peach and Nectarine trees, as their foliage and young fruits are highly susceptible of injury, an overdose skeletonising the leaves, and causing the fruit to fall. Similar remarks apply to insecticides, which, if used too strong, may prove as injurious to the leaves and crop as to the insects. Syringe the trees in the morning and early afternoon on fine days, whilst in dull weather damping available surfaces, as paths, borders, and walls, will be more advantageous than keeping the trees long dripping with water. Water inside borders as required, always affording enough when any is needed to thoroughly moisten the mass of soil through to the drainage. Proceed with disbudding gradually, a little each day, and observe the same rule in respect of thinning the fruit, rubbing off the smallest and badly placed, as soon as the most prominent show signs of taking the lead. Ventilate freely on all favourable occasions, closing early with a view to husbanding the sun's heat.

Latest Houses.—The trees are advanced for flowering, and are promising well, though the wood was not over-ripe from the cold and sunless weather of last year. The danger in such cases is that the trees will rush into growth and impoverish the flowers. This can be obviated to a great extent by free ventilation, so as to cause liberal evaporation, and it benefits the blossom and the growths by insuring sturdiness and high concentration of the forces on the parts developing. Merely use fire heat to exclude frost, and to insure ventilation through the day. When the anthers show turn on the heat in the morning so as to raise the temperature to 50° by 8 A.M., and keep at that through the day with a gentle circulation of air, turning off the heat early in the afternoon, so as to allow of the pipes cooling before night, and the temperature falling to its night minimum of 40° to 45°. This is quite safe, and ought to be secured after the blossoms expand, with a little air to prevent the deposition of moisture through the night on the flowers. Impregnation may be effected by shaking the trees, dusting the flowers with a rabbit's tail mounted on a small stick, a camel's hair brush, or a plume of Pampas Grass, but the best aids to a good set are free ventilation and a genial atmosphere.

Unheated houses should be very freely ventilated in bright weather, but, when the anthers appear clear of the corollas, it is necessary to secure a genial temperature by day, ventilating at and regulating it so that the temperature will not fall below 50°. As a safeguard against frost the house may be closed rather early, enclosing sun heat up to 65°. Do not use any water about the house after noon, and this will prevent moisture condensing on the flowers through the night, or a little air will allow it to escape. Scrim canvas over the roof is useful on frosty nights.

THE KITCHEN GARDEN.

ASPARAGUS.—No favourable opportunity should be missed for putting the beds in order for the season. Where the old-fashioned plan of heavily surfacing them with manure in the autumn has been adopted, and the still more doubtful practice of chopping down the sides of the bed in order to have soil to spread on the manure is followed, the time has arrived for reducing this dressing somewhat. Fork it over carefully, throwing out all stones and other hard rough material that may be found, and then make level so as to bring a good covering over the sides and mutilated roots. Do not dig between the beds, as this would destroy many valuable roots. Beds that have not been touched or manured since last autumn should be hand-weeded, and the surface lightly loosened with a fork, though not deep enough to touch the crowns. A dressing 2 inches or more in depth of good short manure would now act beneficially, and the least that can be done where the crowns are very shallow is to top-dress with as rich a compost as can be collected and mixed, taking care, however, not to use any soil or decaying material that is likely to be full of weed seeds.

SALTING ASPARAGUS BEDS.—A dressing of salt would be quite correct in all cases where the soil is not of a clayey nature, but would do much more harm than good to the latter. Enough may be used at one time on light soils to quite whiten the surface. Salt and guano in mixture answers well on medium soils, this being applied at the rate of 8 lbs. to the square rod, while for heavy soils either apply special mixtures or else guano, the latter at the rate of 6 lbs. to the square rod; second applications to follow in all cases in May or early in June. A dressing of newly slaked lime, 2 bushels to the square rod and lightly forked-in, might do more good than anything else that could be given to richly manured beds.

SOWING ASPARAGUS SEED.—It is yet too early to transplant Asparagus to form fresh beds, but the ground is in admirable condition for sowing, and seed may well be sown at once. The plan of sowing the seed where the plants, or at any rate the requisite number of them, are to remain, answers well, and is economical of labour; but if this cannot be done, then sow the seed thinly in shallow drills 15 inches apart. On many soils Asparagus could be grown very satisfactorily without any special preparation, or other than is made for a bed of Onions, raised beds being dispensed with. In this case, what are intended to be permanent rows should not be less than 3 feet apart, but others may be sown midway between them, and the plants, as well as many from between those to be left permanently, be transplanted elsewhere in the following spring. Where Asparagus has to be forced extensively, or

even only to a moderate extent, it would perhaps save breaking up a valuable bed occasionally if a number of plants were raised specially for forcing. Sow the seed on deeply dug, freely manured, and well worked ground, in drills 2 feet apart, and eventually thin out the seedlings to a distance of 12 inches apart. They ought to have two clear seasons' growth, and would be all the better for an additional year.

CAULIFLOWERS.—Broccoli are scarcer than anticipated, and early Cauliflowers will be more appreciated accordingly. If handlights are available no time should be lost in placing about five plants in each of these. They may also be brought on quickly on warm borders and at the foot of south walls, temporary protection being afforded, especially when first put out. Cauliflowers generally delight in a sweet yet well manured root run, and if the manure is buried too deeply and the top spit be poor a bad start will be made, and "buttoning" take place. Therefore fork a little short well decayed manure into the surface, and plant firmly, always saving as good a ball of soil about the roots as possible. When the plants are sufficiently hardened to be turned out into the open do not longer keep them starving in pots or boxes, and for a time they may be protected during cold nights with inverted flower pots. The small forcing or extra early forms may be planted 18 inches apart each way, Erfurt Mammoth, Early London, Magnum Bonum, and other successional varieties being disposed 18 inches apart in rows 2 feet asunder, while not less than an additional 6 inches each way should be allowed the stronger growing Eclipse and Autumn Giant. Seed of the last named and also one or more of the successional varieties mentioned may now be sown on a border or sunny open spot, the plants thus obtained affording a good succession to those raised under glass.

BRUSSELS SPROUTS.—If no plants have been raised under glass sow seed at once in a good open position, either thinly in drills or broadcast, covering in the latter case with sifted soil. With strong, sturdy plants obtained in this way, and improved strains to select from, there is little likelihood of the crop being either very light or late. Even if abundance of plants have been raised under glass it may yet be advisable to raise more as advised, in case any of those put out early should fail. Brussels Sprouts may also be sown where the plants are to grow. Draw the drills not less than 30 inches apart, sow the seed thinly, and finally thin out the plants to about 2 feet apart.

VARIOUS.—If early Savoys are appreciated, sow seed of King Koffee or other early dwarf variety, and a pinch of Dwarf Ulm on a border or sunny open spot. Should Chou de Burghley also be required before November sow the seed now, but a month later usually answers better, late-raised plants producing the most compact hearts. Borecole should have a rather long period of growth, and the selection may well include Read's Hearting, Dwarf Green Curled, Cottage, and Asparagus Kales. Sow the seed as advised in the case of Savoys and Cauliflowers, and if birds are troublesome either roll the seeds in red lead after just damping them, in anticipation of their attacks, or else net over after sowing. Broccoli need not be raised so early, the only exception being Veitch's Autumn Protecting and the Purple Sprouting. Raise the requisite number of these at once, in the open. Lettuces, Radishes, and Turnips may also be sown on warm borders, and early raised plants of the former be pricked out and lightly sheltered for a time. Sow Celery for late crops. A small sowing of the improved form of Egyptian or Turnip-rooted Beet may be made on a warm border, but it is too soon to sow the main crop.

PLANT HOUSES.

Poinsettias.—If plants that are intended to be grown for another year have not been cut close back they should be so treated at once. After cutting them back place them in an intermediate temperature until they break into growth. It will be wise to syringe them two or three times daily until they break, but too much water should not be applied to the roots. To increase the stock cut up portions of the stem 2 inches in length, and insert them in 2-inch pots; if plunged into brisk heat in the propagating frame they will soon commence to form roots and grow. This we have proved to be the best and readiest way of obtaining a stock of plants.

Euphorbia jacquiniæflora.—Cut back all plants not required to yield cuttings for stock and place them with Poinsettias to start into growth; the same treatment will do for them very well. Those that have enjoyed a good season of rest may be placed in heat, when cuttings will be freely produced. When the young shoots are 2 to 3 inches in length place the plants for a fortnight in a cool airy place to harden the growths. Cuttings prepared on this principle and taken off where they issue from the old plant will root freely in heat. The cuttings should be inserted in sandy soil and covered with bellglasses. They are very liable to damp if placed in the propagating frame. Directly they are rooted the young plants should be potted singly and kept in heat until they are well established in small pots, when an intermediate temperature will suffice.

Stephanotis floribunda.—Plants that are trained on trellises and have started into growth should, if they cannot be secured to wires, have strings attached and the shoots trained upon them. When planted out we have found it a good plan to draw the growths underneath and allow them to hang down. If fully exposed to the sun this checks their growth to some extent and they flower profusely. It is a great mistake to keep these plants in a very close and confined atmosphere, as they grow too soft to flower freely. Those planted out and not needed in flower by any particular time are ventilated freely during the day, and

when they are well started into growth fire heat is gradually discontinued until it is dispensed with entirely towards the end of May. Syringe the plants freely to keep down insects. Young plants should be repotted as they need more root room. If large plants are needed it is a mistake to check them during the early stages of growth. Those who have large specimens planted out that have become crowded may take down strong well-branched shoots and layer them in 10-inch pots. Strong plants can be obtained by this means before the end of the season such as it would take two or three years to grow from cuttings.

Allamandas.—Those that have started into growth must be freely syringed, or yellow thrips will be certain to attack the young points. Nothing keeps these pests in check like the syringe. Young plants cut back that had only one stem and were intended for training to cover a roof should have two shoots trained up from each plant, so that they can be laid horizontally another year, and they will thus fill a large space on the roof. These plants need liberal feeding, especially those that are intended to flower, but do not feed them before they show their first flowers, or they may be induced to continue growth.

Gardenias.—Plants that have flowered may be cut close back and started again into growth. Young plants should be repotted as they need more root room, and the shoots should be pinched from time to time as they need it. If large plants are desired tie out the strong shoots towards the rim of the pots, and the plants will throw up freely from the centre. If a little bottom heat can be given all the better. Be careful not to give them too much water at first; this often prevents the plants starting freely into growth after they are potted. Keep the plants free from scale and mealy bug, which is best accomplished by syringing them freely with 1 oz. of petroleum in 4 gallons of water. Shade the plants for a few days after syringing them until the oil has evaporated.



APIARIAN NOTES.

NAPHTHALINE AND FOUL BROOD.

ON page 208 Mr. John M. Hooker makes some pedantic remarks on a previous article of mine (page 73). His article occupies nearly a column, and with the exception of pointing out that the price of naphthaline was quoted too high by me contains not one sentence of practical information. I am cognisant of the high profits secured by vendors of chemical preparations, and gave the quotation 3s. to 4s., as I obtained it at the time from the nearest retail druggist. The letter I had from Mr. James Wilson asking the questions reflected so much upon the retailers of the so-called cure for foul brood that the Editor would not have printed it. The reference was to my own case. I described exactly what I practised, and accomplished what "J. M. H." would have us believe impossible. I had foul brood in my apiary of a very virulent nature about thirty years ago, and stamped it out in one season without losing a single bee. He surely cannot have forgotten his visit to me when, *inter alia*, I instructed him how to be successful with comb foundation which I had manufactured for fifteen years before "J. M. H." knew about it. I am not a youth in bee-keeping, and know the value of experiments too well to pooh-pooh any. I was the first to experiment in the propagation of the germs of foul brood so far back as 1858. Mention is made of one of the experiments with milk in the *Cottage Gardener* about 1862, and what I discovered then is simply what modernists are grappling with now.

I always endeavour to trace cause and effect, and my teaching is founded on actual experiments. Although, fortunately, I have had no opportunity of battling with the disease amongst my own bees for thirty years or more, I know others who have, and who have tried all the nostrums recommended by so-called experts, and not one of them succeeded in eradicating foul brood. An Inverary bee-keeper having somewhere about 100 hives affected wrote to the Editor of a contemporary for advice, received it, and put it into effect, the result being a complete failure. He ultimately appealed to me, and under my advice in a few months he had the pleasure of seeing his apiary free from foul brood. The result was communicated through me to this Journal, and direct to the *Farming World* from "A. M., Lochfyneside," as stated above. It is surely better to stamp out the disease on its appearance by the mode advocated in this Journal for upwards of thirty years and found so effectual everywhere it has been tried, including Canada, where it has become law, than to harbour it in hives on the supposition that any gas not injurious to bees will eradicate it. But it is better by far to manage hives in such a way that they will not become affected.

I am perfectly aware of the infectious nature of foul brood at

certain stages of its existence. There is a time when it becomes innocuous until it is introduced into a proper nidus, which may be transmitted in various ways to different substances, and to hives at a distance. When introduced neither naphthaline nor any other volatile substance will annihilate it without injuring the bees.

If similar energetic means were taken to stamp out foul brood by our plan as are taken to sell nostrums, the country would soon be rid of the plague, at least for a time. After a hive is affected and all the bees are dead, other agents spring up and destroy the germs of foul brood. Those who keep bees and allow foul brood to exist are not bee-keepers in the proper sense of the word. It is bee-keepers themselves who allow foul brood to exist and spread. For forty years foul brood has never been absent from apiaries only a short distance away, from a few yards to half a mile, and I am not aware of foul brood ever being transmitted to my apiary from them. Not for thirty years have I seen a single affected cell in any of my hives. The cause of it in my earlier days was entirely due to overheating in railway vans or crowded steamers when taking them to Arran. I know full well the effects of and advantages of many chemicals used in preventing the spread of the disease, but I have yet to be convinced that naphthaline or other things of a like nature will suppress foul brood satisfactorily without being in direct contact. It is only during a short time in the whole year that it is advisable to feed, and foul brood spreads most rapidly during a high temperature when bees are breeding most, and at a time when feeding should not be resorted to. It will, I think, be conceded by most persons that Mr. Hooker's attack in this case was quite uncalled for. Whenever "J. M. H." elucidates anything new and of practical utility I will pay due deference to him, and acknowledge with gratefulness my indebtedness.

In conclusion, I advise him not to let foul brood run amuck until it smells strongly, nor until he has to adopt the novitiate plan of "inserting the end of a lucifer match into the cell" to detect it, but study the first symptoms by feel and eyesight. If only one cell presents the dark brown and slightly concave appearance with the clammy touch of adjoining cells, take steps to stamp out the disease, and he then constructs his hives in consistency with sanitary laws, and manages them in conformity with those laws, and I will guarantee that when grappled with on the lines I have laid down, so long his hives will have a greater chance of having an immunity from foul brood, with a great deal less trouble and with more certainty than any nostrums ever tried, most of which have been found wanting and abandoned, after they had had (as naphthaline is getting) their day.—A LANARKSHIRE BEE-KEEPER.

NAPHTHALINE AND NAPHTHOL BETA.

SINCE writing you respecting the above, as a cure for foul brood, I have made further inquiries as to the cost of the same. I now find that the price of naphthaline is about 25s. per cwt.

It should be used only as a disinfectant or preventive against foul brood by dropping one or two small pieces between the outside combs and the sides of the hive, on to the floor board, halfway along the sides, away from the entrance, and should be renewed from time to time, as its strength will evaporate.

"Naphthaline" when used as above is perfectly harmless, but must on no account be used in the food, either syrup or candy. Those whose apiaries are at present free from foul brood will do well to use it, particularly if living in districts where the disease is known to be prevalent.

"Naphthol beta" is used in very small quantities in the syrup or candy when making food for bees. It is much more costly than naphthaline, yet is inexpensive to use on account of the small quantity required.

DR. LORTET'S REMEDY FOR FOUL BROOD.

"For every pound of sugar used for making syrup or candy dissolve 3 grains of naphthol beta crystals in alcohol or rectified spirits of wine. Naphthol dissolves freely in alcohol, but is insoluble in cold water. Pour just sufficient spirits on the naphthol to dissolve it, and make a clear liquid. Pour the solution of naphthol into the syrup when sufficiently boiled, and of proper consistency, and while still hot, just before taking it off the fire."

The above is found to be one of the most successful remedies for treating foul brood, and if the naphthaline is placed in the hive, and syrup containing naphthol beta is given to the bees, and persevered in, a cure will in most cases be effected in time.

BAD CASES OF FOUL BROOD.

In very bad cases, where there is a quantity of putrid brood that smells very badly, no time should be lost in taking away all

the frames of combs in the hive and burning them. If the bees are thought worth saving they should be driven or shaken into an empty skep, placed on the old stand for forty-eight hours without food, after which time the skep and bees should be removed, and a clean frame, hive, and floor board put in the old position, and the bees thrown from the skep on a board in front of the entrance to the hive, into which they will quickly run. My own practice has been to destroy bees, hives, frames and all as the most sure way of being rid of the scourge. This is best done at night by first suffocating the bees in the old way of sulphur pit, then burning the frames and combs. If the hive itself is a good one of modern design, and it is wished to keep it, it should be carefully scraped and washed with strong disinfectants, and not used again the same season.—JOHN M. HOOKER.

TRADE CATALOGUES RECEIVED.

Mr. C. Turner, Royal Nurseries, Slough.—*Softwooded, Greenhouse, and Stove Plants.*

M. Ed. Pynaert Van Geert, Ghent, Belgium.—*Supplement to General Catalogue.*

William Paul & Son, Waltham Cross.—*Catalogue of New Roses and Florists' Flowers.*

Mr. R. Rawlings, Dahlia Nursery, Romford.—*Dahlias.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Unpruned Vines (*M. G., Herts*).—It is doubtful if any application could prevent the bleeding of a Vine if pruned now the growth is starting. Much the safer plan will be to remove the buds down to the base of the laterals, then when those required are in full leaf the budless portions can be cut out.

Training Plum Trees (*F. J.*).—The trees are better trained fan-shaped than as palmette verriers. This latter form suits the Pear better than the Plum, for which the modified fan is the best, also for other stone fruits. The branches should not be less than 9 inches, and they need not exceed 12 inches distance asunder.

Cheap and Good Gladioli (*F. J.*).—One of the best growers says a good dozen will be secured in Teresita, Meyerbeer, Dalila, Amitie, Crepuscule, Opale, Phoenix, Figaro, M. A. Brongniart, Shakespeare, Addison, and Cameleon. We have seen them planted from an inch to a foot in depth, but both are extremes. From 3 to 5 inches is a safe depth to cover the corms, and in a strong soil or late localities we prefer the former as the corms ripen better.

Bees in Conservatory (*T. J. W.*).—Your bees go into the conservatory because of the paucity of flowers outside. The bees lose themselves in not being able to distinguish the openings from the glass, and while attempting to go through it die from exhaustion. For preserving flowers longer in bloom, and at the same time preventing bees being killed, some persons cover all openings used for ventilation with hexagon netting, which prevents bees or birds entering, and subdues the cold currents of air which not unfrequently injure tender flowers.

Manure for Asparagus Beds (*W. L.*).—Salt is useful for this plant, but not so much as a direct plant food as in attracting moisture and indirectly furnishing nutrition by acting on other substances in the soil. Soot is far more valuable as a manure, but suffers considerable loss of its fertilising properties in a very chalky soil, otherwise soot, guano, and sulphate of ammonia are the most suitable manures for Asparagus. You may use nitrate of soda at the rate of 1 oz. per square yard, but it is best to apply it at twice, and half quantity only each time, say early in April and about the second week in May. A third dressing to help the growth for another year may be applied about the middle of June. There is great waste in using ammoniacal manures on "very chalky soil."

Vine Leaves Scorched (W. B.).—The leaves you have sent have been scorched with the sun. This not infrequently occurs when bright days follow a dull period, unless great attention is paid to ventilation. The leaves before us are defective in tissue, and appear as if they had been grown in a too confined atmosphere. Possibly your method of ventilation is not the best, or the house has been kept closed too long in the morning. Early ventilation is of great importance in Grape growing. The few roots sent are not healthy. Lime water would not do any harm. Either the soil is unsuitable or your management faulty; but you do not say one word about either. If you like to write more fully, describing the Vines, soil, and cultural routine, we may, perhaps, be able to give you a little useful advice, and shall be very pleased to do so if we can.

Disbudding Vines (Blackrock).—There is no practical ground for your fear that by disbudding there will be any scarcity of laterals in subsequent years. As a rule there are too many rather than too few growths retained on Vines. When laterals are secured in the right positions on young canes spurs are formed by winter pruning, and on these spurs more buds form than are wanted. If in time the spurs become very long, and the best growth from one of them left for bearing is distant from the base, then, as Mr. Dunkin pointed out in his article on page 235 last week, a young shoot may also be retained at the base, or as near the main rod as possible, pinching this growth at the second or third leaf according as there is room for the development of the foliage, then provision is made for shortening the spur and securing a strong lateral, as gardeners say, "nearer home." Perhaps you had better read Mr. Dunkin's article again, and also read in connection with it another, that will soon appear, on stopping and tying the laterals of Vines.

The Date Plum (Essex).—Diospyros Lotus is the European Lote or Date Plum, and grows wild in countries bordering the Mediterranean. It produces fruit of the size of a Cherry, of a yellow colour and a sweet astringent taste, and it has been recommended as a cure for diarrhoea. D. decandra, a native of Cochin China, bears a large berry, of a yellow colour when ripe, with an austere and somewhat sweet taste and disagreeable smell; but it is eaten and sold in the markets in the northern provinces of Cochin China. The wood, when of sufficient age, is of a fine, compact, regular grain, heavy, very white, veined with black, and sometimes black at the heart, and is highly esteemed for cabinet-work. The fruit of D. psidioides, a native of Peru, is an inch in diameter, with an ungrateful smell and an insipid taste. D. Kaki, a native of Japan, produces a fruit like a yellow Plum, which the Japanese eat to such an extent as sometimes to cause an attack of diarrhoea. It is sometimes imported to this country from China as a dried sweatmeat. It is preserved in the same manner as the Fig.

Apple Wheeler's Russet (J. F. E.).—You ask if this is a distinct variety. Our reply is that it is both distinct and good as a late dessert Apple. It is described and referred to in the *Fruit Manual* as follows:—"Fruit medium sized, 2½ inches broad, and 2¼ inches high; roundish ovate, and somewhat irregular in its outline. Skin entirely covered with pale yellowish grey russet, with reddish brown where exposed to the sun, strewn with russet freckles. Eye small and closed, with short segments, set in a narrow and plaited basin. Stamens median, tube funnel-shaped. Stalk from half an inch to an inch long, slender, inserted in a round, narrow, and deep cavity. Flesh greenish white, firm, juicy, brisk, and sugary, with a rich, vinous, and aromatic flavour. Cells ovate, axile, closed. A valuable and highly flavoured dessert Apple of the first quality. It is in use from November to April, and, as Mr. Lindley says, when ripened and begins to shrivel it is one of the best Russets of its season. The tree is a free grower, healthy, and hardy, but does not attain above the middle size. It is generally a good bearer, and succeeds well in almost any soil, provided it be not too moist." A few days ago Mr. Robert Fenn sent us fruits of this Apple, which is his favourite variety at this season of the year, and he knows what is good as well as most people.

Under Gardener's Duties (Under Gardener).—These vary under different circumstances. In some gardens they are clearly defined and limited wholly to garden work; in others a young man may be asked to do something occasionally outside the garden. If he refuse obviously he must take the consequences. There can be no doubt that as a rule the more obliging a young man is and the more willing to do what he may be asked, the more his services are appreciated and the better his prospects. You were asked, not by the gardener, but by the gentleman who paid for your services, to look after a brood of chickens. You refused and gave up your situation. Many a young man would have done what was asked of him, then, after a time, if he found the situation not agreeable would have given proper notice to leave. This would have been better than refusing to oblige an employer, and forthwith resigning. The manner of refusal is also an important factor. It may be done courteously or more or less offensively, and as your late employer told the nurseryman you were disobliging he would not be likely to ignore the intimation. We are inclined to suspect you did not adopt the most prudent course under the circumstances. Most of the leading gardeners of the day were ready and willing when young to do anything that could be reasonably required of them, and the knowledge and experience they gained on subjects outside their strict gardening duties proved of great advantage to them in after life.

Spawning Mushroom Beds (Youngster).—When the heat of a bed is declining, and a thermometer with its bulb inserted 2 inches below the surface of the bed indicates a temperature of 80°, lumps of spawn may

be safely inserted; but not if the temperature of the bed is still rising, as it may increase to such a degree as to kill the mycelium. When the spawn is inserted it is advisable to cover the bed with litter to prevent the surface drying, also the heat of the bed can be kept nearly uniform by regulating the thickness of the covering. If a thermometer laid on the surface under the litter registers 60° it will be quite right, a degree or two above or below that temperature not being material. If the manure is in good condition, and the spawn good also, the latter will on examination of a lump or two in three or four days to a week after insertion be found to be moving, the mycelium spreading and taking possession of the surrounding manure. The soil should then be added and the beds covered as before to prevent evaporation from the surface. If the covering is too thick, and the surface of the bed kept too warm—approaching 70°—the spawn will probably soon spread on the surface, its presence there in large quantity not indicating a productive and long-lasting bed. Warm water is not, as a rule, used by market gardeners in watering Mushroom beds, except it is warmed by exposure to the sun in tubs or tanks. Under good management they do not need watering in cold weather, as if the manure and soil are properly moist when used, sufficient moisture can be conserved by the covering and damping the litter as may be needed.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*H. Surrey*).—1, Insufficient; 2, *Adiantum pedatum*; 3, *Lycaste Harrisoniae*; 4, *Selaginella Kraussiana*. (*A. K.*).—3, *Rhododendron hirsutum*; 4, *Asplenium bulbiferum*. The other fragments of leaves are totally insufficient for identification. (*Subscriber, Ugbrooke*).—1, *Berberis aristata*; 2, a *Callitris* (?); 3, *Erica codonodes*; 4, *Cephalotaxus Fortunei*; 5, *Retinospora*, probably *plumosa*; 6, *Berberis Darwini*.

COVENT GARDEN MARKET.—APRIL 6TH.

Business steady, with supplies, though moderate, quite equal to the demand.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, ½-sieve	1	0	to	4	0	Lemons, case	15	0	to 20	0
Apples, Canada and Nova Scotia, per barrel	12	0	25	0	Oranges, per 100	4	0	9	0	
Cobs, Kent, per 100 lbs. ..	0	0	45	0	St. Michael Pines, each ..	3	0	6	0	
Grapes, per lb.	2	6	4	0	Strawberries, per lb. ..	8	0	12	0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Bect, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5		
Carrots, bunch	0	4	0	0	Parsley, dozen bunches	2	0	3	0		
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0		
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0		
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6		
Cucumbers, dozen	4	0	6	0	Scorzoner, bundle	1	6	0	0		
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9		
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0		
Leeks, bunch	0	2	0	0	Spiuach, bushel	2	0	0	0		
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6		
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4		

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	5	0	Marguerites, 12 bunches ..	3	0	to	4	0
Bouvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6	3	0		
Carnations, 12 blooms ..	2	0	3	0	Mimosa or Acacia (French) per bunch	1	6	2	0		
Carnations, Malmaison, 12 blooms	3	0	6	0	Narciss (various), Scilly dozen bunches	2	0	4	0		
Cineraria, dozen bunches ..	6	0	9	0	Pelargoniums, 12 bunches	6	0	9	0		
Cyclamen, dozen blooms ..	0	3	0	6	„ scarlet, 12 bunches	4	0	6	0		
Daffodils (double), dozen bunches	2	0	4	0	Primula (double) 12 sprays	0	6	0	9		
Daffodils (single), doz. bnch.	3	0	6	0	Roses (indoor), dozen ..	1	6	3	0		
Eucharis, dozen	4	0	6	0	„ Red, per doz. blooms ..	3	0	6	0		
Euphorbia jacinthæflora dozen sprays	2	0	3	0	„ Tea, white, dozen	1	0	3	0		
Freesia, dozen bunches ..	2	0	4	0	„ Yellow, dozen	2	0	6	0		
Gardenias, per dozen	3	0	6	0	Snowdrops, dozen bunches	1	6	2	0		
Hyacinths, dozen spikes ..	3	0	4	0	Tuberose, 12 blooms	1	0	2	0		
Lilium longiflorum 12 blooms	4	0	6	0	Tulips, dozen blooms	0	6	1	0		
Lilium (various) dozen blooms	2	0	4	0	White Lilac (French) per bunch	4	0	5	0		
Lily of the Valley, dozen sprays	0	6	0	10	Violet Parme, French bchs.	2	0	3	0		
Maidenhair Fern, dozen bunches	6	0	9	0	„ Czar	1	0	2	0		
					„ small bunches	1	6	2	0		
					„ English, doz. bunch.	1	0	1	6		
					Wallflowers (foreign), dozen bunches	1	0	3	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each..	2	0	to	10	0
Azalea, per plant	2	0		3	0	Geuista, per dozen	6	0		10	0
Cineraria, per dozen	6	0		9	0	Hyacinths, per dozen.. ..	6	0		9	0
Cyclamen, per dozen	9	0		12	0	Lily of the Valley, per pot	1	0		1	6
Daffodils, per dozen	9	0		12	0	Lycopodiums, per dozen ..	3	0		4	0
Dracæna terminalis, dozen	4	0		42	0	Marguerite Daisy, dozen ..	6	0		12	0
" viridis, dozen ..	12	0		24	0	Myrtles, dozen	6	0		9	0
Erica various, per dozen ..	9	0		12	0	Palms, in var., each	1	0		21	0
" avenalis, dozen ..	12	0		18	0	" (specimens)	21	0		63	0
Euonymus, var., dozen ..	6	0		13	0	Pelargoniums, scarlet, doz.	4	0		6	0
Evergreens, in var., dozen	6	0		24	0	Spiræa, per dozen	8	0		12	0
Ferns, in variety, dozen ..	4	0		18	0	Tulips, dozen pots	6	0		8	0
Ficus elastica, each	1	6		7	0						

Bedding Plants in variety in pots and in boxes.



ROOT CROPS.

THE sowing of spring crops has been retarded so much by frost and snow that our best efforts are now called for to prepare for those crops which follow the corn and "seeds," and which are usually sown on land somewhat foul, in order that the weeds may be destroyed by a regular course of summer tillage. In such cases the drills are of necessity made far enough apart for horse hoes to be used frequently while the plant is young, so that both horse and hand-hoeing goes on till the spreading foliage prevents it, and when the leaves meet across the intervening space there is no further trouble with weeds, for the season at any rate. After so wet a summer as we had last year foul land is plentiful, and wide sowing will probably be general for that reason this year.

To those farmers having clean land at their disposal we strongly commend a closer method of sowing in view of obtaining a heavier crop. Nineteen inches apart for the rows, and the plants singled to 10 inches apart, was the distance allowed for Mangolds at a farm which gained a first prize in the farm prize competition of the Royal Agricultural Society in 1890. The crop was estimated to weigh upwards of 40 tons per acre, the excess in the number of roots at the distances given over those at 24 inches by 10 inches being 7560 per acre. It is well worth inquiry if the crop was not alike superior in bulk and quality to the ordinary one of big roots. To look at the roots exhibited by the leading seedsmen at cattle shows, size before all things would appear to be their aim; but if size is obtained, as we think, at the expense of quality, then it is just so much waste. Certainly the lesson taught by the Cornish farmer is an important one, pointing as it does to results far above the average, obtained, be it understood, by good all-round practice. Clean land and heavy manuring there must have been, as well as close sowing.

Upon the surface systematic rotation of cropping seems sound enough, but it is apt to induce the slovenly wasteful practice of allowing weeds to accumulate in the soil in view of their destruction once in four or five years. Far better is it to aim at thorough autumn tillage, so as always to keep the weeds under. This is just one of those apparent trifles about which there is so much general carelessness, weeds being allowed to spread till they rob the soil to a serious degree, and then a special effort is made to destroy them. Wide sowing there must be when land is foul, or the crop might be smothered by weeds. By placing the manure in the deep furrows made for it with the double-breasted plough, and keeping hand hoes going among the young Mangold plant, we enable the crop to derive full benefit from it. But last season where land was very foul this was practically impossible, rain fell so frequently that weeds at all strong were reset in the soil by it. The only plan then was to get the roots off the land early, and to plough in the weeds as manure. To do this efficiently the furrows must be well closed, then the weeds are "smothered," and cannot make their way to the surface again. This of course refers to annual weeds; perennials, like couch grass, must be cleared out of soil, for they never can be destroyed in it.

Sow Mangolds as early as possible in April; use enough farm-yard manure under the seed to afford plenty of moisture for the young plant, which then becomes quickly established in the soil, and is well able to withstand the effects of drought. Apply also in the furrows a fair dressing of chemical manure, so that the soil about the roots is rich in fertility; robust growth and a full crop then follow as a matter of course. After the plant is singled is

the time to apply a surface dressing of nitrate of soda; the hoes follow at once, destroying any young weeds, and working in the manure just below the surface, or rather into the surface of the soil, the moisture of which causes it to dissolve, quickly to be taken up by the fast spreading roots.

For Potatoes a similar process of applying chemical manures in the rows answers well. Very poor land requires a fair proportion of nitrate of soda, but where land is in fair condition a mixture of kainit and superphosphate answers best, because nitrate of soda is apt to induce a too vigorous growth of haulm at the expense of tubers. Now that Potato seed is prepared with due care, planting is not hurried on as it used to be; but we can wait till the soil is sufficiently dry to crumble freely under plough and harrow, and then take out our seed trays. Every tuber having its one stout shoot already showing leaves and roots, growth follows planting immediately, and a full crop of fine tubers may be expected.

WORK ON THE HOME FARM.

March came in cold and went out cold too, with a bitter wind from the north-east, patches of snow still lying on the hills and on the cold side of hedgerows. Complaints about scarcity of feed grow louder and more frequent. Cattle are mere "bags of bones" on many a farm, ewes and lambs are so weak that losses among late lambs are severe. No wonder, then, that prices for stock at Lady Day sales are so low. The majority of animals are bought on speculation by dealers; prices are very tempting to farmers, but few of them dare venture, as they are already buying hay for the home stock.

Fortunate indeed is the man with an ample store of fodder and roots. High prices even tempt some to sell, and it is now common enough to see a few loads of hay sold by auction on market days. Mangolds, too, are higher in price than we have known them for some time, but few people have any to spare. Well will it be if we apply the lesson to our scheme of cropping this year, and so avoid a repetition of present difficulties. In calculations of ways and means it is not difficult to see what food will be required per head of stock throughout the year, and always to allow an ample margin for late seasons like the present.

As stock will be kept in the yards late this spring all wet and decaying litter should be cleared out regularly and the yards fresh littered. It is a mistake to suppose that a sodden mass of straw or other litter gains anything by exposure in an open yard; it is far better in a heap, and is then out of the way of the cattle. Push on carting, and get all manure required for root crops on the land, throwing it into the furrows from the carts, and covering at once by ploughing. Get in the Mangolds early, and follow with the first crop of Swedes, sowing both crops on the ridge. Finish folding late Swedes, and have the land ploughed and sown at once with any crop most required; but if the choice of crop is an open one, then sow either successional crops of Tares or an extra field or two of Oats, which always answer well after sheep folds if only good seed is used. Attend closely to the careful selection of all kinds of seeds; see that they are clean, and have no mixture of weed seeds. Many a farm has had Charlock taken to it among seed corn purchased at a low price, but which has proved a most costly article, from the outlay upon hoeing in the effort to destroy the Charlock. Once get Charlock established in the soil, and it requires years of watchfulness to eradicate it.

METEOROLOGICAL OBSERVATIONS.

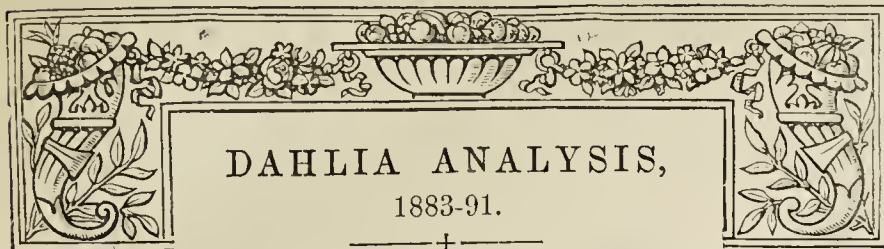
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
March and April.		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	27	29.739	43.3	42.0	N.	41.9	47.4	42.8	58.3	41.3	0.090
Monday ..	28	29.931	32.4	34.2	N.	41.2	40.6	31.8	81.7	31.7	—
Tuesday ..	29	30.428	36.0	33.2	N.	39.7	42.3	29.7	91.2	25.1	—
Wednesday	30	30.579	39.6	35.3	E.	38.8	52.1	30.1	96.7	25.3	—
Thursday ..	31	30.589	42.2	34.6	N.E.	39.0	57.9	28.6 ²	95.1	22.1	—
Friday ..	1	30.489	36.8	35.2	Fog.	39.4	68.1	30.0	98.4	21.9	—
Saturday ..	2	30.414	50.6	40.0	N.E.	40.1	66.5	38.4	108.2	28.3	—
		30.310	40.5	36.1		40.0	53.6	33.0	89.9	28.0	0.090

REMARKS.

27th.—Wet early; a little sunshine between 10 A.M. and 11 A.M., then dull and gloomy, especially in the afternoon.
28th.—Snow from 0.30 A.M. to 2 A.M., and at intervals till 8 A.M., then generally overcast, but occasional gleams of sun; and once or twice a few flakes of snow.
29th.—Fine and generally sunny, but cold wind.
30th.—Brilliant sunshine throughout; cold night.
31st.—Bright sunshine throughout.
1st.—Thick smoke fog till 11 A.M.; bright and warm later.
2nd.—Bright sunshine all day.
Much bright sunshine, but cold drying winds. Temperature nearly up to the average.—G. J. SYMONS.



DAHLIA ANALYSIS, 1883-91.

THERE were fewer Show Dahlias staged in competition at the last annual Exhibition of the National Dahlia Society than at any of the four previous exhibitions. More Fancy Dahlias were, however, shown than in either 1889 or 1890, while the number of Pompons was above the average. The display of both Cactus and Single Dahlias exceeded that at any of the preceding shows.

The following short statement gives the total number of Show and Fancy Dahlia blooms set up at the last nine exhibitions which have been held at the Crystal Palace.

	1883	1884	1885	1886	1887	1888	1889	1890	1891
Shows	692	754	837	840	1106	1158	922	934	854
Fancies....	269	425	355	387	350	315	274	283	286
	961	1179	1192	1227	1456	1473	1196	1217	1140

In the first column of each of the accompanying tables will be found the positions occupied in the analysis by the different varieties which find places in them. These relative positions are derived from the averages given in the second column. Sometimes a new Dahlia is shown sufficiently well the first year after its introduction to allow of the number of times it was staged in that year to be taken into consideration when computing its average for this second column. As a rule, however, it is only in the second year that the record is good enough to allow of this being done. In the present analysis a further improvement has been introduced. In the previous analyses no allowance has been made for the varying extent of the exhibitions. The necessity for some correction on this account will at once be seen when it is explained that at two consecutive exhibitions the number of Show Dahlias was only about 700 at each exhibition, whereas at two other consecutive shows there were no fewer than 1100, or more than half as many again. Consequently, any new Dahlia whose position was made dependent upon its form at the first two shows would, as compared with an older variety, be placed much lower on the list than it ought to be. On the other hand, if dependent on the number of times it was staged at the last two shows referred to, it would be accorded a higher place than it was entitled to. In the present tables all the varieties are arranged on an equal footing in this respect, by their averages being computed as for an exhibition containing an average number of Show or Fancy Dahlias as the case may be, taking into consideration all the past nine exhibitions.

Mrs. Gladstone, which heads the Show Dahlia section, still remains as great a marvel as ever. Although by no means as well represented as usual last year, it nevertheless comes out with an average exactly twice as large as that for any other variety on the list. Harry Keith was so poorly shown at the same exhibition that William Rawlings now passes it into the second place. James Cocker, Hon. Mrs. P. Wyndham, Mrs. W. Slack, Goldfinder, Mrs. Harris, and Prince Bismarck were also indifferently represented. On the contrary, Colonist, Willie Garratt, and Earl of Ravensworth were staged much more frequently than usual.

None of the more recent introductions except Maud Fellowes occupies a prominent position. This variety, which was first sent out in 1889, will be found at No. 9, and thus maintains the good position accorded to it in the previous analysis. Two other Show Dahlias of the same year also find places—W. Jackson at No. 33

and Agnes at No. 50. The only 1890 sort is Alice Emily, which on its first appearance rises to No. 40.

The two leading flowers on the list of Fancy Dahlias, Mrs. Saunders and Rev. J. B. M. Camm, remain as in the previous analysis. Their positions seem, however, to be threatened by a new rival, which on its first appearance occupies at once the third place on the table. I refer, of course, to Mrs. J. Downie. Of established sorts, Rev. J. B. M. Camm, Duchess of Albany, and Frank Pearce were unusually well shown last year, whereas Gaiety, Chorister, and Flora Wyatt were to be seen less frequently than at any of the preceding exhibitions.

As regards the new kinds, Mrs. J. Downie and Matthew Campbell, both of which were sent out in 1889, stand well on the list, the former, as before pointed out, following close on the two leading varieties, while Matthew Campbell has risen from No. 11 to No. 7. T. W. Girdlestone (No. 19), the only 1890 Fancy, also takes a good position considering how short a time it has been in cultivation.

As there are very nearly seventy different varieties on the list of Show Dahlias, it may be of some interest if we consider for a moment what are their respective ages. The two oldest are Flag of Truce (No. 22) and Vice-President (No. 23), which were both distributed twenty-four years ago. But the most prominent and noteworthy of all these veterans is James Cocker. This variety, although this year attaining its majority, nevertheless occupies the fifth place on the analysis. Henry Walton (No. 6), although nearly twenty years old, also still continues to maintain a first-rate position. Taking the whole period of twenty-three years, there have been only two which are not answerable for one or more Dahlias which find places in the table. Two-thirds of them have been, however, introduced during the last eleven years. The record for 1881 is a truly remarkable one for a single year, including as it does no fewer than thirteen sorts:—William Rawlings (No. 2), Hon. Mrs. P. Wyndham (No. 7), Goldfinder (No. 11), Prince of Denmark (No. 12), Shirley Hibberd (No. 17), James Vick (No. 19), Miss Cannell (No. 24), Mrs. Dodds (No. 26), Mr. Harris (No. 27), Sunbeam (No. 40), Joseph Green (No. 41), Champion Rollo (No. 44), and Walter H. Williams (No. 46). Since 1881 good new sorts have appeared at the rate of from two to seven a year.

Although there are less than thirty Fancies tabulated, and the oldest of these (Fanny Sturt) is twenty-four years old, yet there are only three years since then (1869, 1870, and 1874) which are not mentioned in the column containing the dates of introduction. As was found to be the case with the Shows, 1881 was the most prolific year of all, as many as five new Fancy Dahlias having been sent out in that one year. Since then from one to two new good kinds have made their appearance every year. It is the steady advance, both in the Show and Fancy sections, which renders this Dahlia analysis so very satisfactory. It is when flowers like the Japanese Chrysanthemum and Cactus Dahlia are comparatively in their infancy that it becomes so difficult to place all the varieties exactly as they should be; for then new varieties often rush suddenly into favour with exhibitors and as rapidly rush out again, whereas with these Show and Fancy Dahlias the rate of progress appears to be singularly steady and consistent.

In the following selections the varieties are placed according to the total number of times they were staged at the last three exhibitions of the Society.

POMPON.—E. F. Junker, White Aster (Guiding Star), Darkness, Isabel, Favourite, Grace, Lady Blanche, Rosalie, Gem, Whisper, Dora, Cupid, Golden Gem, Admiration, Fairy Tales, and Little Duchess. Phoebe, a new variety, was also well represented last year.

CACTUS AND DECORATIVE.—Mrs. Hawkins, Empress of India, Juarezii, Amphion, Panthea, Honoria, Constance, Henry Patrick, Charming Bride, William Darvil, Cochineal, Marchioness of Bute,

Professor Baldwin, and Lady Marsham. Among those most frequently shown last year were also Robert Maher, Black Prince, and Mrs. G. Reid.

SINGLE.—Amos Perry, Miss Henshaw, Miss Roberts, Victoria, W. C. Harvey, Duchess of Westminster, Mrs. J. Coninck, Marion

Hood, Miss Ramsbottom, Sunningdale White, Duchess of Fife, and Duchess of Albany.

I am indebted to Mr. W. H. Williams for dates and raisers' names of those few new Dahlias which appear in the analysis this year for the first time.—E. M., *Berkhamsted*.

SHOW DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown in the Nine Years.	Number of Times Shown in 1891.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	44.6	38	Mrs. Gladstone	1884	Hurst	Pale blush
2	22.2	25	William Rawlings	1881	Rawlings	Crimson purple
3	21.8	16	Harry Keith	1886	Keynes	Rosy purple
3	21.8	25	R. T. Rawlings	1886	Rawlings	Clear yellow
4	21.3	24	Colonist	1887	Keynes	Chocolate and fawn
5	20.0	14	James Cocker	1871	Keynes	Purple
6	19.3	17	Henry Walton	1873	Keynes	Pale yellow and scarlet
7	19.0	11	Hon. Mrs. P. Wyndham	1881	Keynes	Pale yellow and rose
8	18.7	22	Willie Garratt	1887	Garratt	Bright cardinal
9	18.0	18	Maud Fellowes	1889	Fellowes	Pale pink, shaded purple
9	18.0	30	Mrs. Langtry	1885	Keynes	Cream and crimson
10	16.5	18	Ethel Britton	1880	Keynes	White and purple
11	16.3	11	Goldfinder	1881	Fellowes	Yellow and red
12	16.2	18	Prince of Denmark	1881	Fellowes	Dark maroon
13	16.1	18	J. T. West	1887	Rawlings	Yellow and purple
14	15.3	12	Mrs. W. Slack	1886	Keynes	Blush white, and purple
15	15.0	6	Mrs. Harris	1873	Harris	White and lilac
16	14.6	8	Prince Bismarck	1879	Fellowes	Puce
17	14.4	14	Shirley Hibberd	1881	Rawlings	Dark crimson
18	14.3	7	T. J. Saltmarsh	1885	Rawlings	Yellow and chestnut
19	12.5	4	James Vick	1881	Keynes	Purplish maroon
19	12.5	12	Joseph Ashby	1879	Turner	Shaded orange
20	12.2	14	Harrison Weir	1883	Rawlings	Yellow
21	11.0	10	Clara	1879	Rawlings	Rosy peach
22	10.9	8	Flag of Truce	1868	Wheeler	White and lilac
23	10.3	7	Burgundy	1877	Turner	Dark puce
23	10.3	7	Hope	1883	Keynes	Light rosy lilac
23	10.3	3	Vice-President	1868	Keynes	Orange
24	10.2	12	Miss Cannell	1881	Eckford	Cream and crimson
25	9.6	12	George Rawlings	1882	Rawlings	Dark maroon
26	9.3	4	Imperial	1883	Keynes	Purple, shaded lilac
26	9.3	3	John N. Keynes	1871	Keynes	Yellow
26	9.3	4	Mrs. Dodds	1881	Keynes	Blush and lilac
27	9.1	13	Mr. Harris	1881	Rawlings	Crimson scarlet
28	9.0	10	Crimson King	1887	Keynes	Deep crimson scarlet
29	8.8	11	John Standish	1872	Turner	Crimson
30	8.7	10	Nellie Cramond	1888	Keynes	Purple, shaded cerise
31	8.5	12	Earl of Ravensworth	1883	Harkness	Lilac
31	8.5	10	Mrs. D. Saunders	1888	Rawlings	Pale, edged rose.
31	8.5	5	Mrs. Shirley Hibberd	1877	Rawlings	Cream and pink
32	8.2	0	Mrs. John Laing	1883	Keynes	French white
33	8.0	8	W. Jackson	1889	Keynes	Rosy purple
34	7.9	10	John Henshaw	1883	Rawlings	Ruby crimson
35	7.7	6	James Stephen	1882	Keynes	Orange scarlet
36	7.6	5	Mrs. F. Foreman	1884	Keynes	Lilac
37	7.5	2	John Bennett	1875	Rawlings	Yellow and scarlet
38	7.2	4	John W. Lord	1877	Keynes	Orange buff
39	7.1	10	Mr. Glasscock	1886	Rawlings	Purple
40	7.0	7	Alice Emily	1890	Keynes	Buff yellow
40	7.0	6	Royal Queen	1875	Eckford	Cream and crimson
40	7.0	6	Sunbeam	1881	Fellowes	Buff
41	6.8	6	Joseph Green	1881	Keynes	Crimson
42	6.7	1	Constancy	1878	Harris	Yellow and lake
42	6.7	4	Purple Prince	1888	Turner	Rosy purple
43	6.6	7	Herbert Turner	1873	Turner	French white
43	6.6	0	Mr. G. R. Jefferd	1884	Keynes	Deep yellow
43	6.6	8	Queen of the Belgians	1887	Rawlings	Cream and pink
44	6.5	4	Champion Rollo	1881	Keynes	Orange
44	6.5	3	John Wyatt	1877	Keynes	Crimson scarlet
44	6.5	6	William Keith	1888	West	Dark plum
45	6.3	4	Thomas Hobbs	1886	Keynes	Purplish rose
46	6.2	2	Walter H. Williams	1881	Keynes	Bright scarlet
47	6.0	6	Ovid	1874	Turner	Purple
48	5.7	2	Eclipse	1887	Keynes	Orange scarlet
48	5.7	6	Mrs. G. Rawlings	1887	Rawlings	Blush and purple
49	5.6	4	Rev. J. Goldday	1879	Rawlings	Maroon, shaded purple
50	5.5	6	Agnes	1889	Fellowes	Yellow
51	5.4	1	Julia Wyatt	1869	Keynes	Creamy white
52	5.2	2	Mrs. Kendal	1885	Rawlings	White and purple

FANCY DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown in the Nine Years.	Number of Times Shown in 1891.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	18.6	23	Mrs. Saunders	1872	Turner	Yellow and white
2	16.1	22	Rev. J. B. M. Camm	1873	Keynes	Yellow and red
3	15.0	15	Mrs. J. Downie	1889	Turner	Orange and scarlet
4	14.3	5	Gaiety.....	1879	Keynes	Yellow, red, and white
5	13.8	22	Duchess of Albany ..	1884	Turner	Orange and crimson
6	13.4	2	Henry Eckford	1886	Rawlings	Yellow and red
7	11.7	13	Matthew Campbell	1889	Keynes	Buff and crimson
8	10.8	5	Chorister.....	1881	Keynes	Fawn and crimson
9	10.0	5	Flora Wyatt	1871	Keynes	Orange and red
10	9.9	8	Mrs. N. Halls.....	1881	Rawlings	Scarlet and white
11	9.7	8	Peacock	1877	Turner	Maroon and white
12	9.5	8	George Barnes	1878	Keynes	Lilac and crimson
13	8.8	16	Frank Pearce.....	1886	Rawlings	Rose, striped crimson
14	8.5	6	Hugh Austin	1881	Keynes	Orange and red
14	8.5	7	Rebecca	1883	Keynes	Lilac and crimson
15	8.4	6	Professor Fawcett	1881	Keynes	Lilac and brown
16	7.5	0	Fanny Sturt	1868	Pope	Red and white
16	7.5	4	John Forbes	1882	Keynes	Maroon
17	7.4	11	Edmund Boston	1887	Keynes	Orange and crimson
18	7.1	4	Henry Glasscock	1875	Keynes	Buff and crimson
19	7.0	7	T. W. Girdlestone	1890	Keynes	Lilac and maroon
20	6.7	6	Dorothy	1888	Keynes	Fawn and maroon
20	6.7	11	Egyptian Prince	1873	Keynes	Orange and red
20	6.7	7	James O'Brien	1881	Keynes	Yellow and crimson
21	6.5	2	General Gordon.....	1885	Keynes	Yellow and scarlet
22	5.6	8	Hercules	1877	Keynes	Yellow and crimson
23	5.3	0	Miss Browning	1880	Keynes	Yellow and white
24	5.0	0	Miss Lily Large.....	1876	Keynes	Yellow and crimson

PLANTING VINES.

OUTDOOR Vines are, perhaps, best planted in the autumn, as soon as the leaves assume their ripening tints. The ground is then warm, and Vines, like fruit trees generally, can scarcely resist pushing new roots in fresh, warm, moist soil. Vines, however, outdoor or indoor, are safely planted after the sap becomes active and growth has taken place to the extent of an inch, or a little more.

The borders for indoor Vines will have been prepared in advance of planting time, yet there is still time to form Vine borders, for a width of 3 feet is ample to "set" Vines properly, and it can be added to as they require more root space. Inside borders are unquestionably the best for early forcing, especially of Muscats and Frontignans. Midseason and strong-growing late varieties may have borders partly within and partly outside, the front wall a mere skeleton—9-inch brick pillars about 3 feet apart, covered level with the surface of the intended border with stone headings or skew-back arches, thus leaving openings about 2 feet 3 inches wide for the roots to pass outwards when the proper time arrives. This may not be until the inside border is wholly occupied with roots, therefore the openings must be first walled up, yet so that the brickwork can be withdrawn without disturbing the pillars. The inside border will serve the Vines until they are coming into full profit, and then the outside border can be made in sections year by year, so that for several years the Vines will have fresh soil each year, and extra support given all the while to the crops. Then the inside border can be renovated without loss of crop, and when this part has become well occupied with fresh roots the outside border can be served similarly, and the Vines kept for a long time in youthful vigour.

The border should be concreted at the bottom, unless it has a substratum of gravel or other porous substance, and proper drains and outlets must also be provided. Clean brickbats or stone fragments 1 foot thick, rough at the bottom and fine on the top, like road metal, then 3 inches thick of old mortar rubbish or chalk, will form a good base. On that 2 feet in depth of soil, put together moderately dry and compactly, a yard wide, suffices the first year. The soil will settle a little, yet no allowance need be made on that account, for what is lost in settling will be gained in top-dressings, so that the Vines will have ample depth of rootage.

As to soil, the top spit of the garden, where the cultivation has

been clean, and if of a sandy or gravelly nature, mixed with a fourth of manure, will grow better Grapes than the turf of many pastures, because it will always be open and friable, instead of settling into a close heavy mass like turf, with little grit or stone in its composition. Turf, however, taken off a stony pasture, preferably gravel with flints, and which also has limestone or chalk in its ingredients, about 3 inches thick, will grow grand fruit. Chop the turf moderately small, and add some old mortar rubbish to it, say a tenth, some half-inch bones about a thirtieth, charcoal equal to the lime rubbish, and mix well. Vines like lime and potash, while a trace of iron secures chlorophyll, which at the right time imparts a golden amber or rich purple black to Grapes.

Vines start growth only in proportion to their roots, and planting canes in 7-inch pots have more roots than fruiting canes in 12 or 13-inch pots. The first are best, and in the right condition for planting when moving, having been cut back to the right length early in winter and kept cool since that time. Turn them out of the pots, remove all the soil, spread the roots out evenly in the top 3 or 4 inches of soil, which make moderately firm, supply tepid water at once, and mulch with an inch of sweetened horse droppings. If the canes have not been pruned remove the buds down to where the growth is wanted to proceed from, and cut away the bare part after the young cane has grown a yard.

Sprinkle the Vines and house twice a day, but avoid rapid growth before roots are formed, merely employing fire heat to make safe against cold at night, also on dull days, say 55° to 65°, and close early with moisture. When the Vines take hold of the soil they will grow freely, and every encouragement should then be given to their future prosperity.—G. A.

EASTER DECORATIONS IN CHURCHES.

PERMIT me to take your readers to a church noted for its decorations, so that perhaps they may glean a little knowledge. As soon as we enter the church we are struck with the fact that an artist has been at work. There is no indiscriminate burying of the ornamental carving on the pulpit and reading-desk, nor yet of the delicate tracery of the reredos. Every flower or spray somehow or other seems to bring out more effectively the beauties of the church furniture. The flowers, too, for this work have been well chosen. Spring flowers of every hue are employed, but the

majority of the blooms are white, whilst here and there a crimson *Camellia* is intermingled with them.

The entrance to the chancel is marked by a beautiful group tastefully arranged round the lectern; then we come to the altar, where the artist has excelled himself. It is not "literally smothered" with blossoms, as I once heard a person remark of a pulpit. In direct opposition to this, it is beautifully natural; every flower and leaf on and around the altar has its work to do, and does it to perfection. Those two large specimen *Azaleas*, placed one on each side of the table, have been specially grown for the purpose, and truly resplendent they look in their snowy mantles. Lesser plants complete the group and hide the pots. The *Daffodil* used so largely in most churches is nearly absent here. The *Lenten Lily*, like the *Lenten* season, gives place to Easter whiteness. The window-sills have been covered with fresh green moss, upon which are laid bunches of *Violets* and *Primroses*, woven into Easter texts by busy fingers.

The font, which had escaped our notice when we entered, claims us now. A four-footed cross is fixed athwart the basin. It is composed almost entirely of white *Camellias*. I say "almost," for in the centre are some red and white streaked ones, intended to have a meaning doubtless. The whole is topped by an ingeniously constructed crown, showing that it was attainable only through the cross. The font is surrounded by a carpet of moss, out of which modest *Daisies* peep, adding materially to the artistic effect of the whole. There is no stiffness, no undue crowding, no indiscriminate mixture of colour in the whole church. In fact, Nature reigns completely. The cut blooms are all in water, zinc tins with a flat side having been purposely constructed, so as to be easily tied to their support.—WILLIAM CLAYTON, *Hessle, East Yorks.*

FACTS ABOUT GRAVEL WALKS.

MR. DUNKIN, in defending his practice of turning gravel walks, need scarcely have reminded me of "facts" neither of which I had forgotten or overlooked. My "literary smartness" is limited to a simple condemnation of what I consider a bad practice. In doing so it cannot be said that any endeavour was made to teach your able correspondent or your readers that true economy consisted in placing either bad or expensive gravel upon walks that do not require it. Mr. Dunkin may therefore be said to have knocked down a "man of straw" of his own setting up. My contention is, that in such cases true economy lies in—by the use of weed-killers—leaving well alone. All that such a walk requires in spring (and I venture to say that 90 per cent. of gardeners will agree with me) is to have the edges squared up, any irregularities that may have been caused by heavy rains made good, a good dressing of weed-killer applied, and in a fortnight after, when quite dry, the moss and dead weeds may be dislodged with the back of a rake and swept up. If this is done the walk will look quite fresh enough to satisfy most people, will be more agreeable to walk upon, and better fitted to resist the action of May rains than those that have been turned, however well they may have been rolled down again. It would be interesting to know how many tons of stones are grubbed from the bottoms of walks when such a practice is followed extensively. However much I esteem Mr. Dunkin's writings in general, I do not agree with him here; and if he really believes that there is no risk in bringing a fresh crop of weeds to the surface, he has more faith in his practice than I have, and many more experienced gardeners.—R. I.

HOLLYHOCKS.

WHILST it is easy enough to assert that the *Hollyhock* disease is largely due to the weakening of the constitutions of the plants through hard cutting propagation, it is none the less very difficult to prove. I have seen plants raised from seed saved from other plants which have never been grown under glass literally decimated by the fungus. On the other hand, I have seen plants only a very short distance away blooming finely and absolutely free from the fungus. I fear we shall never be entirely free from this troublesome pest; certainly whilst it is with us we must not hope to see *Hollyhocks* occupying the same important position in gardens, much less on show tables, that they did twenty years since.

The *Hollyhock* fungus seems to be almost impervious to ordinary forms of treatment. It is of a hard scale-like nature, spreading upwards from the soil, where doubtless it hibernates during the winter, and it is folly to plant clean plants whether from cuttings or seed in soil impregnated with the fungus spores. It is very doubtful whether it is of much use to plant even in the same garden anywhere, but if so the plants should be from seed and from a stout clean strain. It is possible that the spores may be transmitted on or through the seed, and thus the progeny be affected. It can hardly be said that any timely application has been devised which will kill the disease without also destroying the plants; indeed, the usual advice given to destroy the infected plants by burning is pretty conclusive proof were any needed that even scientists seem unable to devise any remedy. We have done the most to counteract the effects of the *Potato* fungus through raising varieties of *Potatoes* so robust that the disease seems incapable of doing them

serious harm. Possibly it may be practicable eventually to obtain a race of *Hollyhocks* which will withstand the attacks of the fungus peculiar to the plant presently. But then in relation to the *Potato* it was proved that just in proportion to the production of high quality in the tubers so were the plants more amenable to disease. So has it been found in relation to the *Hollyhock* that very fine quality of the flowers, good form, and exceeding doubleness seemed to have tended to produce plant weakness. We may get very robust growth in the single or semi-double varieties, but such varieties are not wanted, at least by those who wish to exhibit *Hollyhocks*, and we do not want to have to go over again the ground travelled by the old florists, who out of these poor materials produced such grand double forms as were so plentiful a generation since.

One hardy flower, so far, I believe, yet exempt from any particular enemy, the *Delphinium*, has become an admirable substitute for the *Hollyhock*. It is easily raised from seed and thrives well in almost any soil. It is not appreciably affected by insects, and continues to develop in strength for several years. The spikes become long, the stems tall, and the general effect of a number of plants is noble. Of course there is much limitation in colour, but at least *Delphiniums* may be grown finely by anyone with comparative ease. With hardy plants of this description it is no matter for surprise if with all its troubles and difficulties of culture *Hollyhocks* should fall into disfavour, not that there is any lack of love for them when in good form, but repeated failures through the attacking of the fungus so dishearten growers that it is no wonder the cultivation of other plants is reverted to. Should ever the *Hollyhock* fungus disappear, a doubtful event, we may then hope to see our favourites as beautiful as ever they were.—A. D.



SICKLY CATTLEYAS.

ALL Orchids are very tenacious of life, and will continue to linger on between life and death for years. It often happens that plants which have become sickly have to be dealt with. If plants in this condition are overhauled at once and receive proper treatment they may be restored to health in perhaps a season. If they are neglected too long, or badly treated, recovery may be rendered impossible. When plants have been placed in large pans and allowed to remain in them for some years they are very liable to produce weaker pseudo-bulbs, and assume a sickly yellow appearance. Such results are due in most instances to too much water, and a thoroughly decomposed condition of the material about the roots. The plants must not have water stagnating about their roots, which is the case after the soil becomes decayed. If the material about the roots is kept sweet, and all other conditions are favourable, the plants will thrive satisfactorily.

Large plants that have become sickly, or smaller ones in the same condition, should be taken out of the pans. Very rarely are the roots in good condition, and therefore we are not particular about breaking a few of them. The whole of the material is shaken away, and the plants pulled to pieces. Any portions of live roots that can be retained are carefully preserved; if they are not healthy they are cut back. We have frequently cut all back, and then potted the plants again in smaller pans or pots as the case may have demanded. For this first potting the pans or pots are as small as possible consistent with the size of the pieces, and are nearly filled with crocks. For a time they are treated carefully, water being given with care until the plants begin to grow and show signs of rooting, when peat in lumps with a few pieces of charcoal fill up firmly the remaining portion of the pots. When they are rooting fairly well a little sphagnum moss is added. If the plants are watered carefully they often make larger pseudo-bulbs the first season than they made before they were operated upon.

They establish themselves well in baskets, but these are difficult to place in pans afterwards. On blocks they soon become established, but we do not follow the orthodox method of blocking these plants, because they are difficult to place neatly in pots afterwards. When the object is to place them in pots we cut blocks of firm wood (round or square; if the latter the sharp angles are taken off), not exceeding 4 inches in depth. These are well charred in a fire, and the plants are secured on the top, so that we can place a little material about them when they begin to grow. The diameter of the blocks depends upon the size of the plant. When blocked after this manner they can be placed into pans as readily as if they had been previously growing in pans of a smaller size.

Before breaking up plants they should be kept dry, and have

enjoyed a thorough rest. The best time to break them up is just before they start into growth. With increased heat and moisture in the houses two or three weeks only will elapse before the plants push growths and form roots. The freedom with which healthy imported pieces are established and the good growths they make should encourage rather than deter the breaking up of plants that have become sickly. Too many growers are afraid to touch them when once they are established. This should not be the case. The wisest course is to break them up and supply them with sweet material when they become sickly. It proves a new start, and for a long time healthy vigorous specimens are the result.—O. M. A.

COMPOSTS AND MANURES.

IN your last issue (page 257) I find some interesting remarks on the suitability or otherwise of artificial or liquid manure for Orchids. A good deal has been written on this subject; but the experiments reported have I think been chiefly concerned with the terrestrial species, and I doubt not that these are greatly benefited if it is judiciously applied. In making up compost for Phajus, Calanthes, and Pleiones, it is advisable to mix very little manure with it. My practice is to sprinkle a little near the bottom of the pots, and as sphagnum is placed over the crocks to secure perfect drainage a little is dusted over it, and I find it retains it well. By the time the roots reach the manure the fiery nature of it is destroyed, and the plant gets nourishment at the very time it requires it.

As regards Dendrobiums and Odontoglossums, I consider the compost recommended at page 257 to be all that they require if the atmospheric conditions are properly maintained. I am repeatedly asked, "What do you feed with?" and many an incredulous smile do I see when I reply, Nothing but good compost and Loch Katrine water. Last week a worthy Orchid grower, to whom I had sent some small plants of Orchids, told me he had turned them out of the pots and searched diligently for the secret he supposed to be hidden there, and I believe he still thinks they are grown with liquid manure of some kind. Larger growths can be got by the application of manure, but I am convinced that plants of this species will have better constitutions, and so live very much longer, if not subjected to high feeding. *Odontoglossum crispum* is very largely grown now, and has often been tried with something stronger than peat and sphagnum, but while a temporary improvement was apparent it has too frequently ended in disaster. Amateurs in Orchid culture should be very careful in applying manure, as it often happens that the mistake is made of being too lavish with it when a very little might have done good. The experience of those who have successfully used manure will be valuable if the treatment has been continuous, say for ten years at least.—G. R.

SALE OF ORCHIDS.

MR. WRIGLEY'S collection of Orchids at Howick House, Preston, Lancashire, was sold by auction last week. There were 1500 lots, and the following are some of the prices realised:—*Lælia purpurata*, 15 guineas; *Cattleya Reineckiana*, forty pseudo-bulbs, £47 5s.; *Cypripedium niveum*, £27 6s.; *Cattleya Hardyana*, ten pseudo-bulbs, £31 10s.; *Lælia grandis tenebrosa*, fifty pseudo-bulbs, brilliant variety, very large size, 16 guineas; *Cattleya Massaiana*, seventeen pseudo-bulbs, 95 guineas; and another of eight pseudo-bulbs, 45 guineas; *Cattleya Mossiae alba*, twenty-one pseudo-bulbs, 40 guineas; *Lælia bella*, eight pseudo-bulbs, 85 guineas; *Cattleya Schrödera alba*, twenty-six pseudo-bulbs, 38 guineas; *Odontoglossum crispum* var. *Wrigleyanum*, three pseudo-bulbs, 36 guineas; *Phalænopsis Schilleriana vestalis*, very rare, 30 guineas; *Lælia callistoglossa*, thirty pseudo-bulbs, £105; *Lælia anceps Amesiana*, eight pseudo-bulbs, £22 1s.; *Cattleya Wagneri*, forty pseudo-bulbs, £36 15s.

RESTREPIAS.

THE *Pleurothallis* and the *Restrepia* form two closely allied groups of Orchids of considerable interest, but though they differ greatly in numerical strength, the former including over 350 species, while the latter scarcely exceeds twenty, yet the *Restrepia* comprise some of the most beautiful of the small flowered Orchids. At first sight the flower of a *Restrepia* appears to depart widely from the ordinary floral form of Orchids, but a closer examination shows that the difference is more apparent than real. The upper or dorsal sepal is long and very narrow, or even thread-like, the petals being similar, often suggestive of the antennæ of insects; the two lateral or lower sepals are much broader, and are united at their inner edge into a conspicuous tongue-like organ, which seems to perform the attractive office that is usually served by the lip in other Orchids, the lip in the case of the *Restrepia* being small and much less noticeable than the sepals.

Two of the best known species are *R. antennifera* and

R. elegans. In the first named the lower sepals are of a peculiar yellowish ground colour densely dotted with purplish brown, giving a strangely beautiful chequered and rich effect, the upper sepal and petals being pale yellowish. It has been found in New Grenada and Venezuela at from 7000 to 12,000 feet elevation, commonly growing in mossy damp places on tree trunks. Several varieties have been found and introduced, some of which have very distinct colouring, and they also differ in habit.

R. elegans is a charming little plant, resembling that just described; but it comes from Caracas, where it is found near



FIG. 45.—RESTREPIA STRIATA.

Tovar at elevations of about 5000 feet. *R. striata* may be named as a third species of scarcely less interest, and the illustration (fig. 45) will give an idea of the general floral structure in the *Restrepia*s.

All these require to be treated in a similar way to *Masdevallias*, a moderately cool fresh atmosphere and constant humidity, avoiding excess in any direction, being the principal points needing attention.

TOP-HEATING HOUSES.

I HAVE long contended that a great mistake is made in refraining to adopt the principle of top-heating in plant or fruit houses. Wherever tried, if but on a small scale, the plan has answered admirably. We make the mistake, in vineries for instance, of putting the pipes farthest from the Vines, except the one or two front rows, and every Grape grower knows that he never gets a better set or earlier bunches than is found nearest to the front pipes. Now it is very easy indeed to run a series of pipes along at intervals, say of 3 feet, just beneath the Vines, suspending them from the roof. Two-inch pipes are quite large enough for the purpose, and may, as gas pipes can be, easily unscrewed and removed when not required. The only difficulty to surmount is an expansion box or pipe, and that surely can hardly be a difficulty when

the pipes are run say fully 18 inches below the roof. As evidence of the ease with which it is possible to force heat to a good height, I observed in the Mitcham Public Hall the other day that it was heated on one side by 2½-inch flow and return pipes, and on the other side by a single pipe, the return passing another way, and yet the boiler was in the basement of the building 20 feet below. The pipes were fitted with a large expansion tube, standing erect; but something of the same kind might be fixed in a house horizontally if needed. It is a pity that this question of top heating is not more thoroughly applied, warming the air, where it enters at the roof, and not compelling it to descend deeply to become heated.—A. D.



EVENTS OF THE WEEK.—To-day (Thursday, April 14th) there is a meeting of the Brighton and Sussex Horticultural Society. On Tuesday, April 19th, the Show of the National Auricula and Primula Society (Southern Section) takes place at the Drill Hall, and a luncheon is fixed for 2 P.M. at the Hotel Windsor, Sir J. T. D. Llewelyn being expected to preside. In the afternoon there will be a lecture on English Florists' Tulips. On the evening of the same day the monthly dinner of the Horticultural Club will take place, when Mr. H. E. Milner, F.L.S., will give a lecture on "Landscape Gardening." On the 20th a sale of greenhouse plants, Palms, Gladioli, single and double Begonias, Roses, and other plants, will be held at Protheroe & Morris' rooms.

— **THE WEATHER IN LONDON.**—After a period of bright warm weather, lasting several days, the temperature fell rapidly, and the 12th opened dull and very cold. This was maintained over Wednesday, light rain falling most of the day, with snow later, and the temperature remaining very low. This will give a check to vegetation, which had advanced with great rapidity during the week ending April 9th.

— **THE INTERNATIONAL FRUIT SHOW.**—A meeting in furtherance of this Exhibition was held on Tuesday last, and subsequently a deputation, including Sir James Whitehead, Bart., with Messrs. Phillip Crowley, George Paul, J. Laing, B. Wynne, J. Wright, and R. Dean, waited on the Lord Mayor at the Mansion House. His lordship expressed his warm approval of the project, and it is expected that the City will accord active support.

— **UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The quarterly meeting of this Society was held at the Caledonian Hotel on Monday evening last. The chair was taken by Mr. G. W. Cummins, and the election of new members was first proceeded with, ten more being added to the list. Two cheques were granted to the nominees of members that have died—viz., Mr. Benjamin Coombe, who died at Victoria, Texas; and Mr. William Rosier, late of Putney. The sick list was very heavy during the first two months, but at the present time there is not one on the funds, which shows that the health of the members of the Society is extremely good. The usual business being concluded, a hearty vote of thanks to the Chairman ended the meeting.

— **COPPER INSECTICIDE.**—I fancy your correspondent must have used an impure sample of sulphate of copper containing the salt of iron. Carbonate of copper is blue, carbonate of iron is brown. My mention of sub-sulphate related to copperas, not bluestone. I am, as you know, an old practical amateur chemist and know what I am talking about. The phenomena pointed distinctly to iron. I have just gone through the process with bluestone and washing soda, result carbonate of copper, blue as the sky, and nothing else whatever.—CHEMICUS.

— **EDUCATION IN GARDENING.**—I am pleased to see the note of encouragement to young gardeners regarding the writing of essays, and hope a beneficial effect will be derived from it. When a young man writes an article intent upon bringing it before the many readers of the Journal he must needs use the greatest care and exactness in describing his ideas. In so doing he not only conveys to others his practical experience, but impresses more vividly upon his own mind the cultural details of the subject in question. Mistakes are liable to be made, especially by beginners, but they seldom pass unchallenged, for there is generally someone to point them out, either in a friendly or a criticising manner. Opinions differ on various subjects, which some-

times make them the more interesting, and a little discussion serves to thrash out any weak points and bring more prominently before the reader the course to be adopted.—J. CLARKE, *Roby*.

— **WE** are apprised of the death of Mr. JAMES SMITH of Darley Dale Nurseries, Derbyshire, which occurred on the 29th ult. in the eighty-third year of his age. The Darley Dale Nurseries are famed chiefly for Rhododendrons, American plants, and hardy shrubs.

— **NEW DAFFODILS.**—Mr. W. B. Hartland sends us blooms of the new Spanish Daffodil Cervantes, primrose colour, with a much-serrated corona, also a bloom of Zipporah raised at Cork, deep yellow, with smooth perianth segments and long corona, in character resembling the Tenby Daffodil.

— **THE LATE MR. MAJOR'S PLANTS.**—As will be noticed in our advertising columns the unique collection of Cacti, large Himalayan Rhododendrons, and other plants belonging to the executors of the late Mr. C. M. Major of Cromwell House, Croydon, are now being offered for sale on the premises by the gardener.

— **BULBS IN HOLLAND.**—We are informed that the Hyacinths are now in fine flower in Haarlem, Holland, and will be at their best during the Easter holidays. The public sales of Hyacinths begin on the 19th, and will continue every day till the beginning of May. The show beds of Hyacinths and Tulips at Messrs. Krelage's nursery will be opened on Easter Sunday. Admittance is allowed daily from 10 to 12 A.M., and from 2 to 4 P.M. The Show will probably be open till the middle of May, but it will be at its best during the latter half of April. A pamphlet containing historical notes on the Dutch show beds, and the names of the varieties exhibited, has been issued.

— **POST BOXES.**—Many kinds of boxes have been designed for sending flowers, cuttings, and other garden products by post, and another comes to hand from Messrs. F. J. Harris & Co., 14, Golden Lane, London, E.C. It is very good indeed, being simply designed, neat, and strong. Particulars will be found in the advertisement columns.

— **PEACH STONES AS FUEL.**—In California, says a daily contemporary, it is found that Peach stones burn as well as the best coal, and give out more heat in proportion to weight. The stones taken out of the fruit that is tinned or dried are collected and sold at the rate of 24s. a ton. Apricot stones also burn, but not so well as Peach, and do not command so good a price.

— **HARDY FRUIT BLOSSOM IN YORKSHIRE.**—The show of blossom on hardy fruit trees augurs well for a full crop of fruit during the present season, provided we escape late frosts. Apples, Pears, Plums, Apricots, Nuts, and berry trees all promise well. The old foliage on Strawberry plants is quite withered up. They, in common with Broccoli, suffered severely during the prevalence of severe frosts accompanied by a keen east wind early in February, nevertheless the crowns are pushing strongly.—J. T.

— **DAFFODILS ON THE PYRENEES.**—A writer in *Nature Notes*, calling attention to "the iniquity of rooting up wild flowers to sell them to English dealers," says he could name a district in the Basses Pyrénées where not a single wild Daffodil is now to be found. The flower was once abundant there, but an English resident chose to bargain with a well-known dealer to furnish him with roots, and this has been attended by grave injustice to France.

— **YELLOW FLESH TURNIPS.**—When talking to an audience recently about garden roots, I fear I somewhat startled them by asserting that nothing but foolish prejudice prevented us here in the south from growing and consuming yellow flesh Turnips, especially such kinds as Golden Ball or Orange Jelly, which are really yellow counterparts of our Early Six Weeks or Snowball; but I went even further, and strongly advised that bulbs of the field Swede Turnip, which ordinarily produced in the open ground tops far more pleasing to the palate when cooked than are the tops of white Turnips, should be placed in soil in dark places for the purpose of having the tops in a delicate blanched state to be eaten as Seakale. I was therefore interested to read the note on this topic at page 259, because it bore out my own assertion in relation to the value of the Swede as a garden root, although it is not essential that it should have garden culture if a quantity of sound bulbs can be purchased or otherwise obtained from the fields in the autumn for winter and spring blanching. Why we should neglect so capital a root as this Swedish Turnip, and allow it to be used exclusively as food for cattle, can be attributed to prejudice and nothing

else. So far as the yellow flesh forms of garden Turnips are concerned these are far more popular in the north than in the south. They are of a soft smooth eating and well-flavoured nature, less watery than are white Turnips, and those who do not object to yellow flesh find them exceptionally pleasing. Why do not southern growers of Turnips try some by sowing seed next autumn? Generally, the yellow varieties have the reputation of being hardier than the whites are, but that point has not here, in the south, been clearly proved.—A. D.

— AN AMERICAN OPINION OF ENGLISH FRUIT.—In an article in an American magazine on the differences between social customs in England and America, English Apples are pronounced to be inferior to those of Transatlantic origin; but our Plums receive eloquent praise, and Strawberries are acknowledged to be finer here than in the States. In respect to culinary Apples, we have not yet found any imported samples by any means equal in briskness and juiciness to well grown British fruit.

— RESTORING THE POTATO.—A very short pamphlet on this subject has been sent to us, but the author withholds his name. He says little or nothing that is new on the subject. He advises the culture of early and late varieties, also raising new varieties in preference to using "chemical poisons" to prevent the disease. The pamphlet bears the imprint of Robert Lindsay & Co., Glasgow, and we are bound to regard it as a very small threepennyworth.

— TELEPHONE A FIELD PEA.—Market as well as private growers fully appreciate the value of Telephone as a second early Pea. Many of them declare no other variety equals it. Sown with or soon after William I. or other first early it forms a good natural succession, and, what is also very much to the purpose, is a grand cropper, the produce being of the best quality. Under garden culture it attains a height of from 5 to 6 feet, and it is rather surprising, therefore, to find that it should be a favourite variety for growing in the open fields without stakes. Yet such is the case. Telephone is sown very extensively by the working men proprietors or lessees of small holdings in the neighbourhood of Bromham, Wilts, and also on the farm owned by the Bromham Fruit Growing Company, and is said to pay better than any other sort grown. The haulm attains a length of 3 feet to 4 feet, but the rows are only 2 feet apart. The rows are not allowed to overrun each other, the plants being given a longitudinal direction as often as necessary. Several other second early varieties have been tried by those hard-working Wiltshire growers, but none of them have shaken their confidence in Carter's Telephone.—W. I.

— EALING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The fourth annual dinner of this flourishing Society was held last week, and prizes distributed to those gardeners who received the greatest number of marks for exhibits at the meetings. The winners were placed in the following order:—Messrs. Dennison 113 marks, Slatter 80, Gates 66, Chadwick 59, Griggs 46, Baird 36, Whitaker 26, and Cox 13 marks. Only six marks, we think, can be secured by an exhibitor at any meeting. The prizes for essays on "Hardy Border Flowers" and on the "Best Means of Utilising Open Spaces" were won by Messrs. Pentney and Gates, Mr. Green securing the first prize for his essay on "Designing and Cropping a Kitchen Garden." A special presentation was made to Mr. A. Wright for his services to the Society.

— ESSAYS AND LECTURES.—The Rev. J. S. Hilliard, in proposing "The Readers of Papers" at the above meeting, referred to the contention of the Director of Kew Gardens, that gardening could not be taught by lectures. Mr. Hilliard remarked that that might be true, but when gardeners met in societies such as this, and instructive papers were read or lectures given, much valuable information was obtained. The readers of papers were the backbone of the Society, and he was glad to find the backbone was sound. Mr. A. Wright, in acknowledgment, observed that he considered the reading of papers at such meetings as those of the Society one of the best methods they had of spreading knowledge. The opinion of the authorities at Kew on the subject of lectures did not commend itself to gardeners, and he was glad to see that it had been combatted by the horticultural press. It had been shown that much knowledge had been obtained by the lectures on horticulture already delivered in various parts of the country. In their meetings readers had the advantage of the criticism of members, and of thus adding to their store of knowledge.

— DEVON AND EXETER GARDENERS' ASSOCIATION.—The annual business meeting of the Devon and Exeter Gardeners' Mutual

Improvement Association was held in the Guildhall, Exeter, on the 6th inst. The Association, though established only a little more than a year ago, is in a most prosperous condition, both as regards the number of members and its finances. At the present time the number of members—ordinary and honorary—is 104. The Chairman, in moving the adoption of the Report, referred to the great success which had attended the Society during its brief existence. Mr. Carlile seconded, and the motion was carried. It was decided to accept with thanks one of the silver medals of the *Journal of Horticulture* for competition by the members, the subject of the essay being the "Principles of Pruning." The writer is to point out the objects and effects of summer pruning, winter pruning, and root-pruning, describe the best methods to pursue for procuring the most satisfactory results in fruit, and the health of trees and bushes; also to point out concisely errors that should be avoided in practice. Mr. Veitch proposed, and Mr. Weeks seconded, a vote of thanks to the Chairman, which was carried with acclamation.

— SOUTHAMPTON HORTICULTURAL SOCIETY.—The report and statement of accounts of this Society, also the schedules of prizes for this year's shows, are to hand. The spring Exhibition will be held on June 6th; and the summer Show on July 30th and August 1st. Handsome prizes are offered on both occasions.

— BECKENHAM HORTICULTURAL SOCIETY.—We are informed that this Society has been re-organised, and promises to become a very successful institution. The leading gentry and growers of the neighbourhood have given it their assistance. A summer Show is fixed for July 27th, and prizes to the value of £70 are offered. Mr. T. W. Thornton, 42, High Street, is the Secretary.

— CARDIFF HORTICULTURAL SOCIETY.—The annual Show of the Cardiff Horticultural Society is fixed for Wednesday and Thursday, August 17th and 18th. The schedule has been materially strengthened, especially in respect to fruit, and the amateurs are well catered for. The prizes appear liberal enough to tempt good competition, and there should be a fine show. Mr. A. Pettigrew is the Chairman of the Committee, and Mr. H. Gillett the Secretary.

— BRIGHTON SPRING SHOWS.—Referring to the paragraph on page 259 I desire to state, that as our Spring Show on March 29th and 30th was the first ever held here to my knowledge, your correspondent could hardly draw comparisons with previous shows.—E. CARPENTER, Sec. [The "comparison" was perhaps ours, and may have occurred through the modification of a stronger reference, though not out of harmony with the newspaper report that was forwarded, but which we did not insert.]

— BRIGHTON SHOWS.—A correspondent, who is not, however, the Secretary of the "New" Horticultural Society at Brighton, writes:—"I hope you will excuse me if I again refer to the Brighton Shows. I am very sorry that two societies appear necessary, and you cannot be expected to quite understand the situation. There has never been a spring Show held at Brighton before, and the "New" Society was the first to announce it, consequently the first Show was the rival Show, as it will be in October with a Chrysanthemum Show. The New Society's Show, which was advertised in your columns, was very successful." [Rivalry has often done good in having a stimulating effect, but it should always be friendly rivalry. At the same time unity of effort is desirable for the full representation of horticultural skill at provincial exhibitions.]

— CROYDON GARDENERS' DINNER.—The second annual dinner of the Croydon Horticultural, the Borough of Croydon Chrysanthemum, and the Gardeners' and Amateurs' Mutual Improvement Societies took place at the King's Arms Hotel, on Friday last. The Mayor (F. T. Edridge, Esq.) presided. Mr. Wickham Jones occupied the vice-chair, and there were also present Rev. W. Wilks, Mr. Phillip Crowley, Councillor Dart, and Messrs. E. W. Grimwade, Page, Cooper, Gunner, Carr, Roffey, Ritchings, C. Goldsmith, and nearly a hundred others. After the usual loyal toasts, the Chairman gave that of the three Horticultural Societies of Croydon, and spoke in high praise of the good work each Society was doing. He considered they all deserved the hearty support of subscribers. Mr. Carr, Mr. Roffey, and Mr. Wickham Jones suitably replied. The latter remarked that he hoped the Croydon County Council would see their way to assist the Mutual Improvement Society from the fund they had for providing technical education, a remark that was received with applause. The Rev. W. Wilks in responding for the Royal Horticultural Society, spoke at some length of the

value of technical education. He knew of nine or ten County Councils that were providing horticultural lecturers, and in Surrey an examination was to be held at which the medal of the R.H.S. would be awarded. The Chairman's health was drunk with much enthusiasm. Other toasts were "The Gardening Press," "the Vice-Chairman," "The Local Press," &c. An excellent programme of music was provided, and a most enjoyable evening was spent.

— **MUTUAL IMPROVEMENT AT READING.**—One of the neatest reports of the proceedings of any gardening society that we have seen comes to hand from the Reading and District Gardeners' Mutual Improvement Association. There is a balance in hand of twelve guineas. The Society receives, as it deserves, the warm support of Messrs. Sutton & Sons and many leading horticulturists in Berkshire. W. I. Palmer, Esq., J.P., is the President, and Mr. J. Pound, jun., 61, Donnington Road, Reading, the Secretary.

— **LIVERPOOL HORTICULTURAL ASSOCIATION.**—On Saturday evening a fair attendance of members met together under the presidency of Mr. White at the lecture room of the Museum, William Brown Street, Liverpool, to hear a paper by Mr. B. Cromwell, gardener to T. Sutton Timmis, Esq., Cleveley, Allerton, on "The Watering of Plants." Considering the fame of Mr. Cromwell as a cultivator and exhibitor, it was natural for those who were present to expect something good from the lecturer, and in this they were not disappointed, for rarely has such a practical paper been heard at any former meeting, and through the kindness of Mr. Cromwell I hope to see it placed in the columns of the Journal.—R. P. R.

— **WEATHER IN THE NORTH.**—No frost has occurred during the past week till this morning (11th), when 4° were registered with white hoar frost. Dull days have alternated with bright ones, a cold east wind prevailing during the last five days. Pastures begin to show a slight growth, and a green tinge is perceptible in the hedges.—B. D., *S. Perthshire*.

— **REPORT of weather during March from observations taken at Hamel's Park by Mr. E. Wallis.** March has been a remarkably cold month in this district, very bitter winds generally prevailing, and snow and sleet combined with remarkably hard and persistent frost. There was only one night during the whole month when frost was not registered. During the early part of the month there was almost a total absence of sunshine. The last two days in the month were fine spring days. Snow and rain fell upon eleven days during the month. The maximum in any twenty-four hours was 0.42 on the 15th, and the minimum 0.02 on the 25th. The total during the month was 1.43 against 2.05 of 1891.

— **THE WEATHER AT RIPLEY, YORKS, DURING MARCH.**—March opened very cold and winterly with frequent snow storms. This sort of weather prevailed to the 16th, after that date the sun favoured us with a few hours daily, though the frost continued more or less severe to the end of the month. Rain fell upon sixteen days, on thirteen of which it fell in the form of snow. Total fall for the month 1.25 inch. Greatest daily fall 0.34 inch (snow) on 15th. Mean reading of the barometer 30.12, mean maximum temperature 44.6°, mean minimum temperature 24.7°, mean temperature 34.6°, highest shade temperature 64° on 31st, lowest minimum temperature 12° on the 12th. Frost was registered on twenty-seven days.—J. TUNNINGTON, *Ripley Castle Gardens*.

— **MARCH WEATHER IN NOTTS.**—Summary of meteorological observations at Hodsock Priory, Worksop, Notts, 56 feet above the mean sea level, for March:—Mean temperature of the month, 36.7°. Maximum on the 31st, 64.6°; minimum on the 30th, 19.9°. Maximum in the sun on the 18th, 110.4°; minimum on the grass on the 12th, 12.1°. Mean temperature of the air at 9 A.M., 37.2°; mean temperature of the soil 1 foot deep, 38.2°. Nights below 32°, in the shade twenty-five; on grass, twenty-eight. Total duration of sunshine in the month, 100 hours, or 27 per cent. of possible duration. We had six sunless days. Total rainfall, 0.97 inch. Rain fell on twelve days. Average velocity of wind, 8.1 miles per hour. The velocity exceeded 400 miles on one day, and fell short of 100 miles on six days. Approximate average for March:—Mean temperature, 40.8°; rainfall, 1.73 inch; sunshine, ninety-eight hours. It has been colder than any March during the last sixteen years, except 1883. The average night temperatures were lower than in any month during this last winter. The rainfall was the smallest in March since 1879.—JOSEPH MALLENDER.

— **HOT WEATHER IN MID-SUSSEX.**—In Mid-Sussex the last week of March and first of April have been extremely dry, and the sun has been as hot as at midsummer. The maximum temperature in the shade was 71° on the 4th. The mean maximum temperature for the week ending April 9th was 61.1°, the mean minimum 42.5°, mean temperature 49.8°. This is about equal to that of the first week of May in 1890 and 1891, and exceeds that of the last two weeks of May last year. No rain has fallen now since the 26th ult. Notwithstanding a steady N.E. wind vegetation is on the move. Bees have been busy on Gooseberries to-day (9th), and Plums on walls are now in bloom.—R. I.

— **THE WEATHER IN MARCH.**—March was cold until the 16th, with showers of snow; afterwards much milder, and the 31st was very warm and clear. The wind was in an easterly direction seventeen days. We had twelve bright days, four of which were partially clear. There was a very large halo round the moon on the night of the 7th. The barometer was highest (30.62) at 9 A.M., on 30th; lowest (29.19) at 9 A.M., on 10th. The total rainfall was 1.19 inch, which fell on fourteen days, the greatest daily fall being 0.24 (snow) on 27th. The highest shade temperature was 62°, on the 31st; the lowest 19°, on 10th; lowest on grass 14°, on 10th. Mean maximum, 44.90°; mean minimum, 29°; mean temperature of the month, 36.95°. The garden spring ran forty gallons per minute on the 31st. All vegetation was very backward at the end of the month.—W. H. DIVERS, *Ketton Hall, Stamford*.

— **THE SEVERE WINTER.**—I have been in this neighbourhood fourteen years, and the past winter has been the severest we have had during that time. On February 16th we registered 6° below zero. On December 2nd, 1879, we registered 2° below zero, and on January 21st, 1881, the thermometer went down to zero. We hardly know yet the amount of injury caused by the past winter. The Gooseberry crop will be almost a failure. The Plum buds (both wood buds and flower buds) are nearly all falling off quite dead. Of Apricots on a south wall, all buds are killed except those on young shoots lying close to the wall. The trees will all have to be grubbed up. Peach trees are about half dead. In Roses all climbers are dead; even Ayrshire Roses are cut down to the ground. All standards are killed. Dwarfs (both Teas and Hybrids) have stood the winter well; as they were all earthed up like Potatoes they were only killed down to the soil. Shrubs have suffered, though not to the extent they did in the winter of 1879. The foliage of the Ivies has been all killed, also the shoots in exposed places. In addition to the frost the snow did a great deal of damage by breaking off large branches from all kinds of trees. Altogether the winter will be remembered as one of the most disastrous on record in the Midlands.—H., *Leicester*.

GLANUSK PARK.

IN response to a very cordial "Come and see us" we found ourselves on one of the few fine days of August last revelling in the delightful scenery on the banks of the river Usk, and in the delights of high-class gardening as carried on at Glanusk. As the name denotes, the place is situated on the banks of the famous river just named, and is the seat of Sir J. R. Bailey, Bart. It is a typical "country" seat, being eight miles from the nearest railway station; but the glories of the scenery, in the distance traversed, through the Usk Valley from Abergave nny through the historical little market town of Crickhowell, more than compensate the casual visitor for the length of the journey. In an opposite direction a drive of some twelve or fourteen miles through a very beautiful country lands the tourist in the famous old county town of Brecon; but we must leave Mr. Tourist and hie back to our genial escort, Mr. Ballard, Sir Joseph's unassuming and very able gardener.

THE KITCHEN GARDEN.

This is a walled-in square. We find the very best order and foresight evident in the vegetable department, and on the walls beautifully furnished trees of Peaches, Apricots, Pears, Cherries, and Plums, the latter chiefly Victoria and Green Gage. Heavy crops were the order of the day, and the same remark can be emphasised of a wall of Figs. Adjoining this enclosure is another, about an acre in extent, surrounded by a hedge of Thujopsis on three sides, the wall of the kitchen garden forming the fourth. The wall is furnished with trained trees, and the squares occupied with pyramid Apples and Pears, also small bush fruit. A large portion of this enclosure has been covered with wire netting at a considerable height, to secure the crop from the ravages of birds—a necessary expedient with woods so near—and the birds, from the sparrow to the Pheasant, are apparently on the most fearless, if not friendly, terms with the garden hands. The young fruit trees evidently like their position and produce handsome fruit, though not overburdened. Ecklinville Seedling seemed to be a favourite Apple, and well does it deserve to be so. Damsons and Quinces, too, were noticeable. There were many good things in this garden deserving notice, but space will not permit. Among these were Cactus Dahlias, borders of seedling

Carnations and Picotees, lines of Sweet Peas in distinct colours, and some fine beds of Violets for forcing, Marie Louise, Neapolitan, and Comte de Brazza. We have seen these on former visits giving a very good account of themselves in some pits in the frame ground.

These are filled in summer with various useful plants, also Cucumbers and Melons. Two span-roof houses were full of such useful plants as *Calanthe Veitchi* and *C. vestita*, Poinsettias, and Gardenias, with *Stephanotis* occupying the best part of the roof. *Eucharis*, too, were something to boast of—large plants in 24-inch pots, with leathery foliage, pictures of health, affording an almost continuous supply of their choice blooms. An iron structure with a curved roof does duty for Peaches and such a crop as they carried was a treat to see, not only in quantity, but in size and finish, Noblesse particularly so. On the back wall of this house Camellias are well grown.

FRUIT AND PLANT HOUSES.

We were first attracted by a grand old Vine that has done duty for the best part of a century, and still continues to produce good crops of fruit, thanks, of course, to liberal treatment. Double and single

mens of *Davallias* and *Goniophlebium* occupy various positions. Filmy Ferns occupy one end, and the trickling of water creates a refreshing coolness that renders the house most inviting and enjoyable during the summer months.

THE PLEASURE GROUNDS.

I was much struck by the masses of *Tropæolum speciosum*, that make a most gorgeous display in a somewhat shady position. Passing through a trellised archway densely covered with Traveller's Joy, we came upon a pretty garden house about which there was a delicious fragrance, the house itself being covered with Jasmine and beds of sweet Roses and Carnations close by. This, I was told, is the young ladies' garden, and is certainly most charming. Among Conifers I noted a fine *Sequoia sempervirens*, Golden Irish Yews, *Picea Pinsapo*, *Cryptomeria elegans*, the dwarf *Abies pygmaea*, and some fine Cedars. Near the mansion were found several of the dwarf varieties of *Rhododendrons*. The walls of the mansion itself are well furnished with *Magnolias*, Myrtles, *Cotoneaster*, *Pyrus japonica*, *P. j. Lelandi*, *Clematis*, *Ampelopsis Veitchi*, and variegated Ivies. The low walls and balustrading sur-

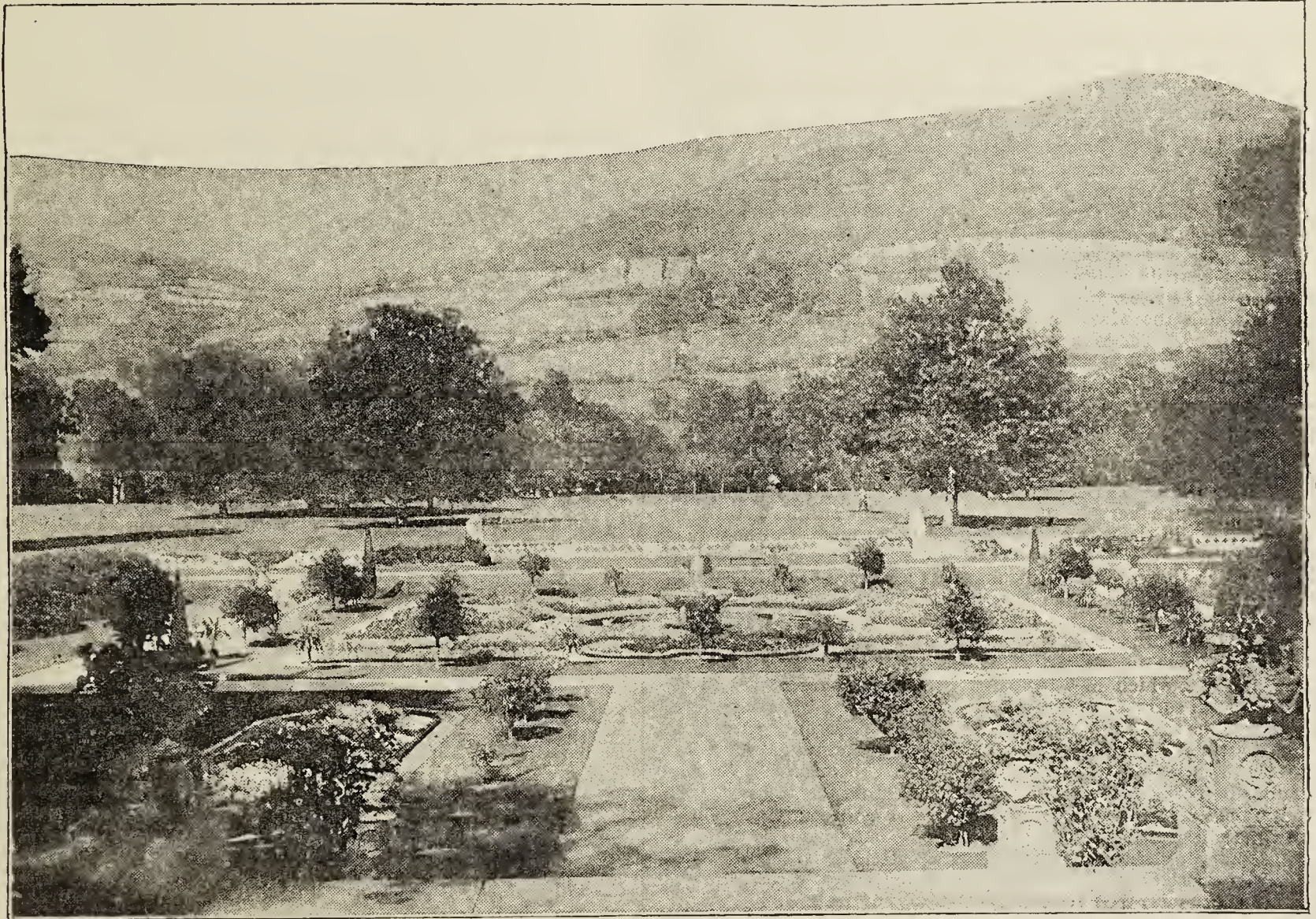


FIG. 46.—GLANUSK PARK AND FLOWER GARDEN.

Begonias were the chief occupants of the stages beneath, and they were exceedingly fine. The stove adjoining contained a miscellaneous collection of useful decorative and flowering plants, the roof draped with Bougainvilleas, Allamandas, *Clerodendrons* and *Passifloras*. *Cœlogynes*, *Cypripediums*, and a few other free-flowering plants represented the Orchids, and the walls are clothed with *Ficus repens* and Ferns. The other four houses in this range are devoted to Vines and Peaches, the former represented chiefly by Foster's Seedling, Muscat of Alexandria, and Black Alicante. Another veteran Vine, however, Black Hamburgh, fills one house, which, for old association's sake, is allowed to exist; but its fruit naturally is not of the finest nor such as we find in the houses of young canes here. With this exception, Vines and Peach trees are simply excellent.

THE FERNERY.

This is charmingly arranged. The structure is roomy, and a stage occupies the front and one end, this being filled with specimens, large and small, of the leading varieties of Ferns for decoration and cutting. The back wall is arranged with cork, the protruding pockets containing pretty drooping specimens, such as *Woodwardias* and *Goniophlebiums*, foliage Begonias, *Ficus repens*, and smaller Ferns, growing close to wall. The centre bed contains Tree Ferns and Palms, and large speci-

rounding the flower garden were also draped with a pleasing selection of climbers and Roscs.

FLOWER GARDEN.

There are three broad terraces in which are flights of steps, with ornamental pillars and vases. The higher terrace commands a magnificent view of the flower garden, and of the well-wooded park beyond; the former, notwithstanding the dull season, was particularly attractive. The beds in the large design were well filled and a mass of colours; *Pelargoniums*, ornamental Grasses, *Calceolarias*, and *Lobelias* were well arranged and most effective. Small paths edged with Box divide the beds. In the centre of the design is a fountain having a circle of jets, the centre jet forming the Prince of Wales' plume. Standard Roses, Bays, and *Rhododendrons* grow at regular intervals, and a number of fine *Yuccas*, too, were in bloom at the time. Many other large beds were as gay as the foregoing, and Roses can only be barely mentioned.

Retracing our steps, we came upon another flower garden, in the form of a semicircle, the boundary on the half-circle side being a stout Yew hedge, which is the background for a border about 6 feet wide, bedded in ribbon style, with blue *Salvia* and white *Marguerite* alternately as a back row, and very effective they were; *Pelargoniums* Waltham Seedling, West Brighton Gem, Mrs. Mappin, and Christine, *Ageratums*,

and Lobelias made this border one of the prettiest effects imaginable. The division of the circle was the range of houses described, to the front of which beds of Roses, Phloxes, and miscellaneous plants were blooming freely. Two large oval beds were carpeted in chaste designs, the whole being skirted by a continuous herbaceous border which contained many plants which must be left unnoticed. Romneya Coulteri, however, must be named as of more than ordinary interest, Mr. Ballard having been more fortunate with this than many of his brother gardeners. We must take leave of our kind friend Mr. Ballard, having already partaken of the bountiful hospitality of the very popular and much-beloved Lady Bailey.—BRADWEN.

WAKEFIELD PAXTON SOCIETY.

THE fifteenth annual dinner of the members of the oldest of the Paxton Societies and flourishing Horticultural Improvement Association was held on the 5th inst. About seventy sat down to an admirable repast provided by Mr. Lupton. Delegates attended from the Bradford, Leeds, Rotherham, Sheffield, Morley, Batley, Dewsbury, Barnsley, and Rothwell Societies. The room was tastefully decorated with plants, flowers, and draperies by Messrs. Hall and Armitage, some specimens of *Diclytra spectabilis* in baskets suspended from the ceiling being much admired. Mr. Ald. Milnes, the senior Vice-President, occupied the chair in the absence of Major Taylor, the President of the Society, through indisposition. Supporting the Chairman at the principal table were the Mayor of Wakefield (Councillor W. Nicholson, J.P.), W. H. Stewart, Esq., J.P., Mr. G. Webster, President of the Wakefield Tradesmen's Association; Mr. Henry Hardman, President of the Wakefield Tradesmen's Benevolent Institution; Mr. J. R. W. Eldridge, also Messrs. B. Whiteley, H. S. Goodyear, and W. Pye, three of the Vice-Presidents. All the arrangements had been admirably conducted by the courteous Secretaries, Messrs. Thos. Garnett and G. W. Fallas, who were present.

After the tables were cleared the usual loyal toasts were proposed by the Chairman, and heartily welcomed. The "City and Trade of Wakefield" was then proposed by Mr. W. R. Thompson, President of the Dewsbury Society, to which the Mayor, Mr. G. Webster, and Mr. H. Hardman suitably responded. The Mayor referred to the rapid spread of the love of horticulture among all classes, and the pleasures attending upon it, also to the great work done by the Society among the rising generation of the city by the annual Window Gardening Show and Wild Flower Exhibition.

W. H. Stewart, Esq., J.P., proposed the toast of the evening, "The Paxton Society," in a happy, polished, humorous, and eloquent speech. He spoke of gardening as a useful and beautiful art. It was useful because it produced a very great variety of food. In this country we were far too much in the way of making a too free use of animal food. The human constitution required food in variety, which could only be procured through the vegetable kingdom, and produced in its finest form through the art of gardening. To cultivate the imagination and to purify the mind there was nothing more beautiful than a well-kept garden; to the man who could wander through such a garden unmoved he did not wish to be introduced. Flowers were emblematic of many phases of our lives, which he illustrated by eloquent references to the periods of joy and sorrow in the lives of all.

Continuing, he said the Wakefield Society had not only turned its attention to cultivated plants and flowers, but had endeavoured to inculcate in the minds of the children of the neighbourhood a love for the natural productions of the country in the wild flowers. There were, however, some people in their enthusiasm for wild flowers given to depreciate the art of gardening. He pointed out that the gardener did not control, but simply guided Nature. He also referred to the action of the Society in procuring the Recreation Grounds for the inhabitants of the city, who owed to them a debt of gratitude.

Alderman Milnes, in responding, stated that the last year had been the most successful the Society had experienced. The Library was in a flourishing condition, and was managed by an admirable Librarian in Mr. Ramsden. The Society was also fortunate in having two such excellent Secretaries as Messrs. Garnett and Fallas. He also gave a due meed of praise to the Committee for their regular attendance, seeing that many of them lived a considerable distance away. In conclusion, he referred to the delegates' meeting that evening, which was most unanimous, and he was glad to find that other societies looked upon the *Journal of Horticulture* prize medal scheme like the Wakefield Society did, as one of those educational agencies which might prove to be very beneficial, and probably lead to annual contests in the literature of gardening.

The next toast was that of "The Kindred Societies and Visitors" proposed by H. S. Goodyear, Esq., and responded to by Mr. Martin of Rothwell, who gave an admirable description of the work of and the enthusiasm prevailing in his Society, a comparatively new one which had been established with the aid and advice of the Wakefield friends. Mr. Pettler (Leeds), Mr. Armitage (Morley), and Mr. Simmonds (Sheffield) also responded. "The Essayists" was next proposed by J. R. W. Eldridge, Esq. He characterised the action of the *Journal of Horticulture* in offering a silver medal for competition as noble and generous, as was also the determination of the Wakefield Society to advise the throwing open of the competition to all the neighbouring societies. In order to signify his high regard for the benefits which accrue from the reading of essays he decided to offer a book prize, value one guinea, for the best essay on some subject to be confined to the Wakefield Society only. The toast was responded to by Mr. Pye and Mr.

Chapman. Mr. Whiteley proposed the "Patrons and Donors," which was responded to by Mr. Stewart. The musical friends acquitted themselves well, and a most enjoyable evening was spent.

EDUCATION IN GARDENING.

A MEETING of delegates from the various West Riding societies of Yorkshire was held at the Paxton Society's room at 5 P.M. previous to the above dinner. Representatives were present from Dewsbury, Leeds, Sheffield, Rotherham, Bradford, Barnsley, Batley, Morley, and Rothwell.

Ald. Milnes of Wakefield occupied the chair, and introduced the subject of the silver medal essay kindly offered for competition to the whole of the Yorkshire West Riding societies by the *Journal of Horticulture*. The Chairman explained that the medal had been allocated in the first instance to the Wakefield Society alone, but it had been thought desirable by the Committee of the Wakefield Paxton Society that the competition should be thrown open to the whole of the societies existing in the West Riding. In order to discuss the matter, and to ascertain the opinions of the several societies, the present meeting of delegates was called. He expressed his satisfaction that so many societies had responded and welcomed them to Wakefield.

Mr. Garnett, one of the Secretaries of the Wakefield Society, read over the conditions of the competitions, which were handed to each of the delegates. The Chairman then invited opinions and suggestions from the delegates present.

One of the Bradford delegates thought all had a kindly feeling towards the movement, and remarked that it would be a boon to young gardeners by offering an incentive to them tending to induce them to search more for horticultural knowledge than they otherwise would do. It would be a great honour whoever won the medal, and he was glad to say that his Society was entering into the matter heart and soul.

Mr. Batley, from Barnsley, said since the communication had been received they had not had a general meeting of the members, but the Committee of the Society had received the matter very favourably, and no doubt many of their members would try their best to win the medal.

Mr. Ballinger (Barnsley) remarked that any subject written upon dealing with horticultural matters would be education in gardening. He wished to ask if the training of a young mind in gardening matters from the first commencement, or the taking up of one subject only, was meant. On this he sought a definite opinion.

A Dewsbury delegate thanked the Wakefield Society for extending the competition to other societies. Some of their members thought that any gardening subject would be sufficient, but from the conditions read he found that competitors must devote the whole of their paper to the subject stated, "Education in Gardening." He thought some of their members would compete.

Mr. Pettler (Leeds) said the matter there had been taken up generously and warmly. Several would be glad to compete, and the members generally were pleased that the Editor of the *Journal* had set afoot this competition.

The delegate from Morley stated the matter had been well received there, and several members hoped to compete.

Delegates from Rotherham and Sheffield intimated that the matter had not yet received the attention the subject demanded, but they had not the slightest doubt the matter would be received favourably.

Batley expressed itself favourably through its delegates, who stated that there was a feeling that this competition was a step in the right direction, and the outcome would probably be the bringing forward of some talent now hidden. The delegate from Rothwell reflected the opinion of his Society as also favourable.

Mr. Garnett then gave his views upon the subject of the essay as set out as follows by the Editor.

SUBJECT OF ESSAY.

EDUCATION IN GARDENING.

- | | |
|------------------------|-------------------------|
| (a) Subjects to Study. | (c) Books to Consult. |
| (b) Methods to Pursue. | (d) General Advantages. |

Taking the first part of the subject, section *a*, he thought it should take into consideration matter pertaining to practical and theoretical gardening, and should bring to the surface the best knowledge the essayist was capable of producing. It might bring forth latent talent from many who see things from a fresh and original standpoint.

Section *b*, "Methods to Pursue" referred to the different ways of acquiring knowledge, in the case of the young gardener not only from opportunities during both life, but by taking advantage of everything coming within his reach.

In section *c*, "Books to Consult," it would simply mean what the essayist would recommend as authorities to study to follow out the methods laid down in section *a*.

With regard to section *d* it would be easy to understand what the effects of a better education would be to every gardener. He had no doubt that the essayists would be able to show most conclusively the general advantages accruing from such education.

Mr. Garnett proposed that the 1st of June be the latest time for sending in the names of competitors, and the 1st of August for forwarding the essays to the *Journal of Horticulture*. This was seconded by one of the delegates, and carried unanimously.—E. D. S.

[We desire to express our appreciation of the generosity of the Committee of the Wakefield Paxton Society in inviting the members of

other societies in the West Riding to join in the competition, which otherwise would have been confined to the members of the parent Society. As we think the greatest compliment we can pay to the Wakefield Paxtonians will be by following their example, we now propose a still wider offer. Several gardeners remote from centres of population (and who in consequence are not members of any horticultural or mutual improvement Society) have expressed their regret in not being eligible to join in the silver medal essay competition on the lines prescribed. We therefore offer an additional medal for the best essay on the subject above set forth, to be competed for by gardeners resident in any part of the United Kingdom who are not members of horticultural societies or gardeners' improvement associations. Gardeners who wish to compete will be supplied with the necessary conditions on application (within a week) and the receipt of a stamped directed envelope by the Editor. While marking our approval of the action of the Paxtonians, we have not the least desire to influence other Societies who may desire to confine the competition to their own members.]

ROYAL HORTICULTURAL SOCIETY.

APRIL 12TH.

THE Drill Hall has rarely presented a more attractive appearance than it did on this occasion. The exhibits were not only numerous but many were full of interest. There was a fine display of cut flowers and indoor plants, while Orchids were a powerful feature, but fruit was sparsely represented. References are made to the leading exhibits in the notes that follow.

FRUIT COMMITTEE.—Present: Phillip Crowley, Esq. (in the chair), Dr. Hogg, Messrs. John Lee, R. D. Blackmore, Harrison Weir, G. Bunyard, G. T. Miles, T. J. Saltmarsh, W. Warren, A. Dean, W. Bates, J. A. Laing, G. Wythes, H. Balderson, F. Q. Lane, J. Smith, G. Cliffe, G. H. Sage, G. Reynolds, A. H. Pearson, G. Taber, J. Cheal, P. C. M. Veitch, T. F. Rivers, J. Hudson, G. W. Cummins, A. D. Moss, and J. Wright.

Mr. R. Gilbert sent trusses of ripe fruit of his Satisfaction Tomato, but no award was made. Mr. G. Wythes sent a seedling Strawberry from Keens' Seedling, both bearing plants in pots, and a box of ripe fruit, also a box of ripe fruit of Vicomtesse Héricart de Thury, and a cultural commendation was awarded. Mr. Wythes sent seedling Cucumbers, neat fruits, but not considered superior to established varieties.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), Messrs. B. Wynne, Robert Owen, R. Dean, Walter Furze, Norman Davis, R. B. Lowe, T. W. Girdlestone, E. Mawley, C. E. Pearson, G. Phippen, C. T. Bause, F. Ross, C. J. Salter, W. Bain, T. Baines, C. Noble, H. H. D'Ombain, J. Frazer, H. Turner, G. Paul, G. Gordon, J. Laing, O. Thomas, and G. Nicholson.

Roses in pots made a good display, particularly those shown by Mr. W. Rumsey, Joyning's Nursery, Waltham Cross (silver-gilt Flora medal). The blooms were fresh, and, as a whole, of excellent form, Madame Hoste, Rubens, Reine Marie Henriette, and the Hon. Edith Gifford being very good. Mr. Rumsey also staged a fine box of cut blooms of Niphetos, and another of miscellaneous Roses, amongst which Grace Darling, Princess Beatrice, and May Rivers were noticeable. Messrs. W. Paul & Son, Waltham Cross, also sent some plants of Tea and Hybrid Tea Roses.

The collection of New Holland plants, which included many old favourites, staged by Messrs. Hugh Low & Co., Bush Hill Park, Enfield, also formed a pleasing feature, and attracted considerable attention (silver Flora medal). The plants were noticeable for the freshness and variety of bloom.

Messrs. B. S. Williams & Son, Upper Holloway, staged a large group of Orchids, Amaryllises, and Clivias, which made a very imposing display (silver Banksian medal). An Amaryllis named Mrs. B. S. Williams, a good white, was generally admired, as also was Morning Star and Crimson Banner, both very effective varieties.

A representative collection of Daffodils and Narcissi cut from the open ground was sent by Messrs. Peter Barr & Sons, Long Ditton (silver Banksian medal); and Messrs. Cutbush & Sons, Highgate, exhibited a group of Narcissi and miscellaneous plants, for which a bronze Banksian medal was awarded.

Messrs. G. Paul & Son, Cheshunt, showed an interesting collection of hardy plants, which included *Magnolia stellata plena*, *Geum aureum* (bright yellow), *Shortia galacifolia*, *Primula rosea*, and *Caltha palustris fl.-pl.* A dark crimson *Canna* named Miss Sarah Hill was also shown by the same firm. A beautiful stand of *Magnolia conspicua* was exhibited by Mr. J. Hudson, Gunnersbury.

Anthuriums were, as they have been on previous occasions, well represented by collections of seedling and other varieties staged by Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (silver Banksian medal). A white seedling was noticeable, and there were many with spotted spathes. Messrs. Robert Veitch & Sons, Exeter, showed, among other things, two plants of *Lotus peltiorhynchis*, a distinct drooping species, with crimson flowers, and a dwarf *Calla*, named *C. æthiopica compacta*. *Primula Forbesi*, with pale pink flowers borne on long stems came from the Royal Gardens, Kew, and a small plant of the same species from Messrs. Vilmorin & Co., Paris.

A few blooms of a white *Chrysanthemum* named L. Canning were shown by Mr. R. Owen, Maidenhead; and Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, staged flowering branches of *Magnolia stellata rosea* and *Amaryllises*.

In the competitive classes for small collections of Daffodils and Narcissi, H. Berkley James, Esq., The Oaks, Carshalton (gardener, G. Gibson); H. J. Adams, Esq., Roseneath, Enfield (gardener, C. May); the Rev. T. E. Brown, Dunston, Lincoln; Mr. A. Kingsmill, Harrow Weald, Stanmore; the Rev. G. P. Haydon, and Miss Reeves, Cork, were the principal prizewinners. The Rev. G. H. Engleheart showed an interesting collection of seedling Narcissi and Daffodils.

Mr. J. Fitt, Panshanger, Hertford, showed blooms and foliage of *Beaumontia grandiflora*, Kew variety, for which a vote of thanks was accorded; the flowers were trumpet shaped, pure white, and very sweet scented. Messrs. J. Laing & Sons, Forest Hill, sent, among other things, a pan of *Primula denticulata*; and Messrs. Carter & Co., High Holborn, plants of Improved Snowflake *Cineraria*.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), Baron Schröder, Messrs. J. O'Brien, De B. Crawshaw, H. M. Pollett, T. W. Bond, H. Ballantine, W. H. White, C. J. Lucas, J. Douglas, E. Hill, S. Courtauld, H. Williams, T. B. Haywood, and Dr. M. T. Masters. Orchids were well represented, and of more than ordinary interest.

A very attractive group came from Messrs. B. S. Williams & Son, a well-flowered *Odontoglossum Pescatorci*, *Dendrobium Phalaenopsis Schröderianum*, *Cypripedium Schröderæ*, *Chysis bractescens*, *Odontoglossum sceptrum*, *Vanda tricolor* "The Glen" variety, *Cœlogyne lactea* and *Cattleya Lawrenceana* being noticeable, and a silver Banksian medal was awarded. Messrs. Hugh Low & Co. also had a pleasing display. *Cypripedium Volonteanum*, with small drooping flowers, the petals bright purplish mauve, and the dorsal sepal arching over in an almost horizontal position, was curious and interesting. *Lycaste plana Measuresiana*, *Cypripedium hirsutissimum*, several *Cattleyas*, such as *C. Mendeli albens*, *C. intermedia amethystina*, and *C. amethystoglossa*, and *Angræcum fastuosum*, were also represented. Mr. F. Sander had a freely flowered group, amongst which were some very interesting exhibits. To *Cypripedium Chamberlainianum* special honours were accorded by the Committee, and this is referred to below. Of the others may be noted *Stanhopea nivea*, *Masdevallia Lindeni*, *Odontoglossum Cervantesi roseum*, *Oncidium ampliatus majus*, *Dendrobium Farmeri virginale*, *Dendrobium Venus*, and *Grammatophyllum Measuresianum*. The latter, with its pale yellow flowers, richly marked and blotched with purplish brown, was very attractive. A silver Banksian medal was awarded.

A small collection, but full of interest, came from Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (gardener, Mr. W. H. White), and a silver Banksian medal was awarded. The *Cypripediums* were a noteworthy feature of it. They comprised *C. Lawrenceanum*, in splendid condition; *C. Elliottianum*, very fine; *C. Peetersianum* (*lævigatum* × *barbatum*), *C. Clovenfords Hort.* (*Veitchi* × *lævigatum*), *C. Fraseri* (*hirsutissimum* × *barbatum*), a dark form with curiously twisted petals; *C. bellatulum*, and *C. Lawrebel Hort.* The latter received a first-class certificate, and is described below. *Bolbophyllum Sillemianum* received a botanical certificate. *Chysostoma crassifolium*, with racemes of very small flowers, white with pale mauve lip, was also represented; as were *Masdevallia Wendlandi*, *M. Moensi* (*xanthocarys* × *Wagneri*), and *Odontoglossum crispum pardalinum*, heavily blotched. Baron Schröder (gardener, Mr. Ballantine), exhibited several sprays of *Odontoglossum* unnamed, but which included one or two excellent forms. For instance, there was a magnificent spray of *Leeanum*, a beautiful form, the flowers pale yellow, spotted and blotched with brown. The sepals and petals are narrow and twisted. *O. triumphans* was also finely represented. Messrs. Heath & Son, Cheltenham, had *Odontoglossum Roezli magnificum*, chiefly noteworthy for the very conspicuous blotch at the base of the petals; and *Cypripedium Swinburnei*, which is referred to below. R. J. Measures, Esq., Cambridge Lodge, Camberwell, exhibited *Cypripedium siamense*, described as a new species imported from the Straits Settlements. The flower is small, the lip bronze, approaching light brown, the petals green with a suffusion of brown, and a broadly defined bar of brown along the centre, the dorsal sepal light green, spotted with purple, and broadly margined with pure white. Messrs. F. Ross & Co. had *Dendrobium Falconeri* var. *nobilior*; Mr. H. A. Tracy, a fine piece of *Cattleya Lawrenceana*; and M. S. Cooke, Esq., *Dendrobium Wardianum giganteum*.

G. R. le Doux, Esq. (gardener, Mr. Bowyer), received and merited a silver Banksian medal for a miscellaneous group, in which *Odontoglossums* were particularly attractive. Mr. Wythes, Syon House Gardens, showed a very fine plant of *Dendrobium thysiflorum*. C. J. Lucas, Esq., Warnham Court, Horsham, had a beautiful group for which a silver Banksian was awarded. Amongst them was a grand piece of *Odontoglossum Cervantesi decorum*, which received a cultural commendation. A silver Banksian medal was awarded to H. J. Elwes, Esq. (gardener, Mr. Hansford), for a splendid specimen of *Vanda Denisoniana*.

Messrs. J. Veitch & Sons exhibited an interesting collection of *Dendrobiums*, including the distinct *D. atro-violeaceum* and *D. euryclea* ×, referred to below.

We noticed on one of the tables some models of flower pots and Orchid pans exhibited by Mr. Dudley Wilson, 9, Dempster Road, Wandsworth, with a channel round the rims for holding water. The object of these is to afford a barrier against slugs, to prevent the drying of the soil, and to afford atmospheric moisture.

CERTIFICATES AND AWARDS.

Cypripedium Chamberlainianum (F. Sander).—A remarkable amount of interest centred in this novelty, which is undoubtedly

strikingly distinct and beautiful. The flower shown was small to medium in point of size, but fully developed blooms are said to be 4 inches across. The flower stem is dark purple. The lip of the flower appears to have a greyish ground, but is so densely dotted with deep rosy purple as to have a very rich appearance. The petals are twisted, hairy, pale green, but nearly covered with purplish black blotches on both sides. The staminode is very prominent, being purplish black. The dorsal sepal is rounded, light green in the centre, but paler towards the edges, and the base deeply marked with purple, which also extends in streaks up the sepal (first-class certificate).

Odontoglossum Pescatorei var. *Lindenæ* (Messrs. Linden, L'Horticulture Internationale, Brussels).—A beautiful form, white, with faint rosy suffusion; lip lightly lined with pale yellow, and blotched towards the base with reddish brown. The petals, which were elegantly recurved, and the sepals were also clearly blotched with the same colour, the markings being well defined (award of merit).

Dendrobium Euryalea × (C. Ingram, Esq., and Messrs. J. Veitch and Sons).—This is a cross between *Wardianum* and *lituiflorum*, sepals and petals drooping, white suffused towards the tips with rosy mauve, lip similarly coloured, but with velvety purple throat (award of merit).

Cypripedium Lawrebel, *Hort.* (Sir Trevor Lawrence).—A charming hybrid that attracted great attention, *Lawrenceanum* × *bellatulum*. The lip is deep purplish red, the petals of the same colour and spotted with black, the dorsal sepal very broad, rosy red with darker lines, and edged with white; the base, as also that of the petals, greenish. The form is very dwarf, and the leaves beautifully marbled with light and dark green (first-class certificate).

Cypripedium Swinburnei (Messrs. Heath & Son).—The lip of this species is dull green, brownish towards the top, the petals reddish brown, spotted with black and greenish towards the base, the dorsal sepal light green with lines of purple dots, and edged with white (award of merit).

Cattleya Marriottiana (Sir William Marriott, Bart.).—A hybrid between *Cattleya Skinneri* and *Lælia flava*, remarkably distinct. The lip is pale yellow, suffused with rose towards the tip and curling inwards; the sepals and petals are pale blush (award of merit).

Rhododendron campycarpum (Messrs. R. Veitch & Sons).—A very pretty species with cup-shaped flowers, about 2 inches in diameter, and of a lemon yellow colour (first-class certificate).

Tecophylea cyanocrocus (Messrs. J. Laing & Sons).—A charming little plant, with deep blue Iris-like flowers and light stripes in the throat (first-class certificate).

Utricularia Humboldti (Baron Schröder).—This is likely to prove a valuable addition to the stove. It has rather large pale bluish flowers borne on long spikes, and is altogether an interesting and attractive plant (first-class certificate).

Utricularia longifolia (Messrs. F. Sander & Co.).—The flowers of this are deeper in colour than the last-named species, but smaller in size (first-class certificate).

Amaryllis Crimson King (Messrs. J. Veitch & Sons).—A neat bloom of a rich crimson colour, a decided self (award of merit).

Amaryllis Firebrand (Messrs. G. Paul & Son).—An effective flower striped with crimson, the ground colour being white (award of merit).

Narcissus Golden Bell (Rev. G. H. Engleheart).—A very fine trumpet-shaped variety; the trumpet was of a rich yellow colour, and the perianth a pale sulphur (first-class certificate).



BOLTON HORTICULTURAL AND CHRYSANTHEMUM SOCIETY.

THE Chrysanthemum Show of this Society for the present year is announced to be held at the Town Hall, Bolton, on Friday and Saturday, November 4th and 5th. Mr. Jas. Hicks is the Secretary, and will, no doubt, send a schedule in due course.

THE KINGSTON AND SURBITON SOCIETY.

A REPORT and balance-sheet of the past season, and a schedule for the forthcoming autumn Exhibition, have been received from the Secretary of this important Society, Mr. Woodgate. It is satisfactory to find that notwithstanding a falling off in the receipts through unfavourable weather on the second day of the last Exhibition, there is a balance of over £18 in hand. The prizes are of the usual liberal character. The leading "special" is of course the challenge vase, but Messrs. Laing and Son offer a cup value £5 5s. for twenty-four blooms, which will, no doubt, arouse keen competition.

THE NEW PRESIDENT OF THE NATIONAL CHRYSANTHEMUM SOCIETY.

THE announcement of the acceptance by Sir Edwin Saunders, F.R.C.S., of the position of President of the National Chrysanthemum Society will be received with widespread satisfaction. His garden at

Fairlawn, Wimbledon, is one of the most beautiful in the neighbourhood of London, and he has long taken a great interest in it. He has been a consistent supporter of the local horticultural societies for some time past, and was elected a Vice-President of the N.C.S. three or four years ago. He was unanimously elected Chairman of the Conference in 1890.



FIG. 47.—SIR EDWIN SAUNDERS, F.R.C.S.

The members may rest satisfied that in the new President they have one who will always take a warm interest in the welfare of the Society.

EXHIBITION CHRYSANTHEMUMS.

IT is somewhat unfortunate that we should have two "E. M.'s" identified with the Chrysanthemum, but it is hoped that readers of the interesting table furnished last week from Berkhamsted will have no difficulty in recognising the Secretary of the National Rose Society as a distinct personage from that other very distinguished "E. M." of Swanmore. Now I refer to this list chiefly because it would seem as if the compiler assumed that the statistics given represent the actual exhibition merits of the respective flowers named. What would have been of more interest, so far as a coarse variety like *Etoile de Lyon*, for instance, is concerned, would have been to learn not so much how many times it was shown as in how many first and second prize stands of flowers it was seen. Then I would ask, Do Chrysanthemum growers especially class it as the premier Japanese variety? I think not. It did seem to me that last year the pride of place was taken by *Vivian* Morel, and no doubt this year it will have been found at the Royal Aquarium to have leapt up from 38 to No. 1, so superb a variety is it. Were a dozen, or even a score, of the leading exhibitors of Chrysanthemums invited to compile from the list published their selections of the best dozen varieties, it would then be very interesting to learn how many marks *Etoile de Lyon* obtained. It is just possible that some exhibitors would regard ease with which good blooms can be obtained as of the first consideration. Others would, however, pay most deference to actual beauty and quality of flower, and after all those are the chief elements of good exhibition flowers. It is very possible that many amateur cultivators may in relation to Japanese varieties regard the list referred to as affording an infallible guide in selecting the best sorts for exhibition. How far they would be right or wrong is rather for the best exhibitors to say.—A. D.

BIRMINGHAM SPRING FLOWER SHOW.

THE twelfth annual Exhibition was held in the Town Hall on the 6th and 7th inst., and was undoubtedly the best of the series. Fortunately the weather was fine. There was a large display of Hyacinths, N. Thwaites, Esq., securing the first prize for eighteen, and A. W. Hulsc, Esq., that for twelve. Both these and the other classes were well filled. There was also a plentiful supply of Tulips, Lily of the Valleys, Spiræas and Deutzias. A few good Roses in pots were staged, and a very fine lot of specimen Azaleas, Mr. J. Palmer, gardener to W. Bown, Esq., being first with very fine plants, and Mr. Cooper, gardener to the Right Hon. J. Chamberlain, M.P., a close second. Mr. Bown was first also for three specimen Azaleas, one of them, a white, being from 5 to 6 feet high and perfect in bloom and foliage. Some fine Ferns were staged, and a rich display of *Azalea mollis*, some of them large-sized specimens, were in the competing classes. Cinerarias were numerous and fine.

Some excellent specimen stove and greenhouse plants were staged, Mr. Brasiere, gardener to Sir Thomas Martineau, being first for six, including superb examples of *Clivia miniata* and *Anthurium Schertzerianum*. For three stove and greenhouse plants, Mr. J. Cryor, gardener to F. A. Kenrick, Esq., was first, his collection including a remarkably fine *Hydrangea Thomas Hogg*, 4 feet through, with large heads of flowers.

Two fine groups of Orchids were staged in competition, and Mr. Burberry, Orchid grower to the Right Hon. J. Chamberlain, M.P., was

an easy first with an admirably arranged large group, in which suspended plants were used, such as *Dendrobiums*, *Cattleya citrina*, and others. In the group was a good plant of *Lycaste clava*. Mr. Powell, gardener to G. H. Kenrick, Esq., was second with a fine group. In both cases Ferns were used.

The specimen Orchids were a grand display. In the class for six, Mr. Palmer, gardener to W. Bown, Esq., was first with *Cattleya Lawrenceana*, a grand mass deep and rich in colour; *Dendrobium thrysiflorum*, *Odontoglossum crispum*, *Oncidium sarcodes*, *Dendrobium Wardianum*, and *Cypripedium villosum*. Second, Mr. Burberry, the Orchid grower at Highbury, with *Cattleya Lawrenceana*, *Dendrobium nobile*, *Cattleya Schröderiana*, and *Dendrobium Devonianum*, *D. Findleyanum* and *D. Wardianum*. Both had very fine specimens. For three Orchids Mr. Palmer was first with fine examples of *Cymbidium Lowi*, *Dendrobium nobile*, and *D. fimbriatum*. Second, Mr. Burberry, with *Ada aurantiaca*, well flowered and brilliant in colour, *Dendrobium Dalhousianum* and *D. Wardianum*. The first prize for a single specimen Orchid was carried off by Mr. Finch, gardener to Mr. Alderman Marriott, Coventry, with a magnificent *Dendrobium thrysiflorum*.

Five groups of mixed plants were set up in competition, and were a pretty feature of the Exhibition, Mr. Cooper securing the first prize, having a fine display of *Clivias* and *Amaryllis* with other plants.

Mr. Finch won both first prizes in the gentlemen's gardeners' class for brides' and bridesmaids' bouquets, both very beautiful; and Messrs. Pope & Sons, nurserymen, were first for a superb bouquet in the open classes. Liberal prizes were also offered by Messrs. Thomson & Co. and Messrs. Sutton & Sons for Hyacinths, Tulips, Cinerarias, and Cyclamens, and there was keen competition in each class. Other prizes were also offered by other nurserymen.

Honorary exhibits were very numerous. Messrs. Robert Ker and Sons, nurserymen, Liverpool, staged fully 100 pots of *Amaryllis*—a grand display—in which very fine form and substance were remarkable. This fine collection was most deservedly admired. Messrs. Cutbush and Son, Highgate Nurseries, London; Messrs. Pope & Son, Messrs. Hewitt & Co., Messrs. R. Smith & Co. of Worcester, and Mr. R. Vertegans also sent groups of interesting plants, as did Messrs. Thomson and Co., who contributed a very beautifully arranged group; while Mr. Robert Sydenham staged a large collection of Hyacinths and Tulips, some of them being especially fine.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

As usual the large Waverley Market in Edinburgh was requisitioned for the spring Show held on the 6th and 7th of the present month. The entries were more in number than at last year's Exhibition, but judging by the general appearance of the large structure there was apparently less produce staged. The winter and spring in the north, as elsewhere, have been fickle in the extreme, and under such conditions the result as seen on the tables in the Waverley Market was eminently satisfactory.

Among the chief features of the Show was the large group of hardy Ghent Azaleas staged by Messrs. Ireland & Thomson, 81, Prince's Street. The best sorts were included, the grouping was most effectively carried out, and the exceeding brilliancy of many of the sorts was toned down by the softer coloured varieties and by a lavish employment of Ferns used as a groundwork. This fine exhibit was well worthy the special prize awarded to the firm. Another noteworthy table was furnished by Messrs. Ker & Sons, Aigburth, Liverpool, to which also a special prize was given. This consisted of a variety of named and seedling *Amaryllis* raised by the exhibitors, and was certainly the best group of these now popular plants yet seen in Edinburgh.

Close to these Messrs. Laing & Mather, Kelso, had a smaller group of Malmaison Carnations in the different sorts, flowering in 6-inch pots, and they also exhibited some dozens of cut blooms of the same flower. A special award was given to this table. Messrs. Laird & Sons, West Coates, had a group of *Clivias*, seedlings. Messrs. Methven & Sons, Princes Street, and Messrs. Dickson & Co., Waterloo Place, each set up a very bright display of stove and greenhouse plants, which added very much to the general effect. Special prizes were awarded to both firms.

In the competition produce, Orchids were the feature, and nothing finer, if so fine, has ever been staged at any previous exhibition. The first prize for six distinct sorts was secured by Mr. McIntyre, gardener to Sir Charles Tennant, The Glen, Innerleithen. His plants comprised large specimens of *Dendrobium Wardianum*, *Cymbidium Lowianum*, *C. eburneum*, *Cypripedium Boxalli*, a small *Cœlogyne cristata*, and a two-spiked *Odontoglossum Edwardi*. Mr. Wilson, gardener to Hugh Stevens, Esq., Kelvinside, came second with a fine lot, five of the plants being *Odontoglossums*, and the sixth a large and good example of *Dendrobium nobile*; of the former *O. triumphans* and *O. Andersonianum* were noteworthy. The third prize was secured by Mr. Sharp, gardener to Charles Wood, Esq., Freeland, *Cypripedium grande* and *Vanda suavis* being good. Mr. Curror, gardener to C. Douglas, Esq., Eskbank, was the other exhibitor. For three and for one Orchid, Mr. J. Jardine, Osborne Terrace, secured the first prizes, Mr. Sharp being second for the latter, and Mr. McIntyre third. The latter was also first for twelve sorts of cut Orchids, and staged among others bunches of *Cypripedium grande*, *C. villosum*, *Odontoglossum Rossi majus*, *O. Pezomachus*, and *Phalænopsis Schilleriana*.

Hyacinths and other Dutch bulbs were staged in good numbers. In the nurserymen's class for the former Messrs. R. B. Laird & Sons were first with twenty-four good spikes, and Messrs. Kerr & Son, Kalemouth,

second. Mr. D. McBean, gardener to J. C. Cunningham, Esq., Craigends, had the chief prizes in the gardeners' section. The best Tulips were staged by Mr. G. Wood, gardener to J. Buchanan, Esq., Oswald House, and the best Narcissi by Mr. Cowan, Penicuik.

In the classes for Ferns Mr. Napier, gardener to P. Niel Fraser, Esq., Murrayfield, staged the best four, an extra fine example of *Goniophlebium* being conspicuous. The same exhibitor was first with a fine case of *Filices*. British Ferns were also well shown. In the various classes for stove and greenhouse plants, Azaleas, Indian and hardy, foliage plants, and Palms, the chief prizetakers were Mr. McIntyre, The Glen; Mr. McIntyre, Darlington; Mr. Wood, Mr. A. Crichton, and Mr. J. Forrester, Green Park, Liberton. Large numbers of Mignonette, which was fine, Cyclamens, Primulas, Richardias, Lily of the Valley, Spiræas, Deutzias, and other seasonable plants were staged.

Fruit was a small display. Mr. Pirie, Selkirk, set up fine examples of Noble Strawberries, both in pots and as a dish. A few Grapes were staged, the best coming from Mr. W. Smith, Dalkeith. Mr. G. Potter, Seacliffe, had the best Apples in both kitchen and dessert kinds. These were not large, but fresh and well kept. Of vegetables there was a fair display. The best collection came from Mr. P. Robertson, Hartrigge, Jedburgh, Peas, Potatoes, Extra Leeks, and Onions being the most noteworthy dishes. In the single dishes, Mushrooms, Rhubarb, French Beans, Leeks, and early Potatoes were noticeable.



HARDY FRUIT GARDEN.

OUTDOOR FIGS.—The culture of Figs outdoors is not generally practised because of their unsuitability for positions other than those which are warm and sheltered, also safe from very severe frosts in winter. The trees only succeed in the open as bushes or standards in the southern parts of the kingdom, chiefly in Sussex on the chalk formation. In less favoured districts they must have the shelter of a wall having a south or south-west aspect, where protection can be easily afforded in winter. They are not injured in the least by covering during the season of rest, but if it is possible to do without the latter so much the better. The warmth diffused in the gable end of a building up which a chimney runs makes it an excellent situation for a Fig tree. From the middle of April to May is the best season for planting Figs outdoors. Growth does not commence before May, the Fig being one of the latest of hardy fruits to come into leaf. A fertile, but not rich, friable loam, of a calcareous nature and well drained, is suitable. Too moist soil will not render the trees fruitful, but the reverse. A warm, firm, and restricted root run favours short-jointed growth, followed naturally by fruitfulness. Where the soil is not naturally calcareous the addition of lime rubbish materially improves it. A border 5 or 6 feet wide is ample. Manure is not needed when planting, but a mulching may be applied to keep the border moist in summer, and further support can be given if required in the form of liquid manure.

PRUNING AND TRAINING FIGS.—Practically the Fig should receive little or no pruning. When grown in suitable positions in light warm soil the growths made are mostly fruitful, and pruning simply resolves itself into thinning overcrowded shoots in summer, and allowing the foliage on those retained to be fully exposed to the sun. When first planting, however, some little pruning is necessary in order to provide the requisite branches for covering a given space of wall. The main branches must be trained about a foot apart.

WALL TREES.—Protect wall trees when necessary, both when in flower and during the early swelling of the fruit. Look out for insects; green fly and red spider are generally the first to show themselves. Both may be destroyed by syringing with a solution of 2 ozs. of soft soap dissolved in a gallon of water, adding to this a little tobacco liquor. The cause of the early appearance of these pests on wall trees is generally to be found in a dry condition of the border, which must be speedily rectified by a thorough soaking of water to reach the lowest roots. It is not advisable to syringe or apply water in cold weather when easterly winds prevail. The maggot which attacks Apricots and Plums must be sought for; it rolls itself up in the leaves. Crushing is the best means of eradication. Newly planted wall trees will be benefited by syringing in bright weather. Plums, Pears, and Cherries need protection in some situations, in others they may be quite safe. For protecting choice pyramid Pears three or four long poles are placed round the trees of sufficient length to reach well above the tops, and to allow of being drawn out at the foot. They may be bound together at the top. Material wrapped round these, making all secure, so that wind does not loosen it, will preserve the blossom from injury. Similar poles placed against walls on which choice fruit trees are growing, and the protective material stretched over them, answer the purpose as well as more ambitious arrangements.

DISBUDDING PEACHES, NECTARINES, AND APRICOTS.—This important detail in the culture of these fruits must have early attention. First rub off all misplaced shoots or buds when quite young that can be decided upon as totally unnecessary; then remove some of the

topmost buds or shoots, as these are seldom required, except one or two for drawing sap to the fruit. After another interval remove more superfluous shoots, always doing the operations by steady degrees, so as not to check the trees unduly. Finally disbud to two, which will be the most required—one at the base of the current fruiting shoot, and the other at the end—for encouraging the circulation of the sap to the swelling fruit. This applies to established trees. Ill-furnished trees and young specimens should be treated with a view to furnishing the required space or filling up vacancies. The young fruit will also need early attention where it has set thickly, thinning it out by degrees, but leaving the final thinning until after the stoning period.

FRUIT FORCING.

PINES.—Young plants in course of preparation for fruiting often become soft, drawn, and weakly in growth through a close, moist atmosphere and high temperature; this should be carefully avoided by dispensing with fire heat as much as possible, relying for robust growth and a sturdy habit on sun heat. Maintain the temperature at 60° to 65° at night and 70° to 75° by day artificially. This is sufficient to sustain the plants in steady progress. Commence ventilating at 75°, gradually increasing it with the temperature to 85°, keeping it through the day at 85°, 90° or 95° from sun heat, with abundance of air. Close at 85°, but not so as to greatly raise the temperature, for however beneficial this may be to plants swelling their fruits it causes attenuated growth in young plants. Sprinkle available surfaces at closing time, and syringe the plants lightly about twice a week. Examine each plant before water is given, and when needed supply sufficient to moisten the soil down to the drainage.

Plants swelling their fruit are assisted by judicious applications of liquid manure, to be withheld when ripening commences. Stake the fruit to keep it in an erect position. When the suckers of fruiting plants become large enough screw out the hearts of those not required for stock; one, or at the most two, should be retained on a plant. The temperature should range in fruiting houses from 70° to 75° at night and 80° to 95° by day. As the fruit ripens the plants may be removed to a cooler house, and the fruit will then keep sound for a lengthened period, longer, indeed, at this time of the year than any other.

FIGS.—*Early Forced Trees in Pots.*—Ventilation must be increased when the fruit shows signs of ripening, and exposure to the sun greatly enhances the flavour. Many fruits, however, cannot have full exposure to the sun, but judicious pinching, thinning, and tying the branches admit of their receiving a fair amount; and light, with a circulation of air and freedom from water, is absolutely essential to well flavoured Figs. This dryness of the atmosphere greatly encourages the Fig tree's worst enemy—red spider. It does not make much progress under good syringing, but when the atmospheric moisture is reduced its spread is something remarkable, therefore no effort should be spared to have the foliage clean up to the ripening time. Brown scale also spreads rapidly over the young shoots, and extends to the leaves and fruits. There is nothing like contesting the advance of these pests on their first attacks. A little soapy water applied with a sponge to the first specks of red spider on the leaves, and the young scale dislocated by a brush dipped in a softsoap solution, 3 ozs. to a gallon of water, saves much after trouble, but care must be taken not to injure the fruit, which is extremely tender. Supplies of water at the roots are needed through all stages, yet less when the fruit is ripening than during its swelling. Figs for home use should be ripe when taken from the trees, those for sending away must be gathered before they are fully ripe. Increase the ventilation at 70°, affording air constantly during the period of ripening. Day temperature 80° to 85° from sun heat, and night temperature 60° to 65°.

Succession Houses.—Trees in inside borders will need abundant supplies of water, and those in narrow borders and carrying heavy crops of fruit require liquid manure, with rich surface dressings. Attend frequently to tying in, thinning, and stopping the shoots at about the fifth leaf of such as are required to form spurs, and avoid overcrowding the shoots. Maintain a night temperature, after the leaves become full sized, of 60° to 65°, and 70° by day, allowing a rise to 80° or 85° from sun heat, ventilating from 70°, closing at 80° so as to rise 5° or 10° afterwards.

Late Houses.—The trees in these require syringing on fine days sufficiently early to allow of their becoming dry before night. Ventilate freely in the early part of the day; strive to secure solidified growths, and close early in the afternoon with plenty of atmospheric moisture where there is means of excluding frost, but in unheated houses afford moderate moisture only.

VINES.—*Early Houses.*—Red spider generally appears more or less on all early forced Vines. Thoroughly cleansing the house and removing the loose surface soil prevent a large amount of after trouble; still it is hardly possible to force Vines without this pest appearing, and after trying almost everything we have found nothing comparable with soft-soapy water applied with a sponge on the first appearance of the pest. Sulphur applied to the hot-water pipes heated to 170° gives out fumes that annihilate red spider, but sometimes injure the tender skins of Grapes, and therefore sulphur must be used with great care. Plenty of liquid support at the roots, with due supplies of atmospheric moisture arising from light mulchings of sweetened horse droppings, are inimical to red spider.

Where the Grapes have commenced colouring give the border a thorough supply of water in a tepid state, and mulch with rather short but not close material. The water or liquid manure should be applied

early in the day, so that surplus moisture may pass off before closing time. When the Grapes are fully ripe only afford sufficient heat to prevent the temperature falling below 60°, maintaining a moderate amount of moisture for the benefit of the foliage, and it will not injure the Grapes provided free ventilation is afforded. If the weather prove bright a light shading, as a double thickness of herring or single pilchard nets over the roof lights will assist Hamburgs in retaining colour, allowing moderate lateral extension.

Succession Houses.—Thinning the bunches and berries requires early and close attention, as every surplus bunch or berry left longer than is necessary to make a selection of the best takes from the ultimate size and finish of those left for the crop. Likewise in disbudding and stopping, every needless growth is only so much wasted energy, and allowing growth to be made for which there is not room seriously hinders assimilation and the storing of matter essential to the perfecting of the current crop as well as prejudices the future. It is not good practice to allow more foliage than can have full exposure to light, and some margin for extension must be left at stopping, so as to prevent ultimate overcrowding, for the Vines require steady supplies of nourishment, and that means root action to imbibe it and foliage to digest it properly. Borders require plenty of water, and weakly Vines improve wonderfully with tepid liquid manure.

Vines swelling their crops should have a moist atmosphere, damping the house two or three times a day and at closing time with weak liquid manure. Syringing the Vines, except for a special purpose, is best avoided, as the water generally leaves a stain—a great blemish on ripe Grapes. Admit a little air early, increasing it with the advancing temperature, and maintain it at 80° to 85° through the day from sun heat; close early so as to rise to 90° or a little more, and admit a little air at the top of the house before nightfall. This prevents moisture accumulating on the foliage, and is a safeguard against scorching. A temperature of 60° to 65° at night and 70° to 75° by day is sufficient from fire heat.

Late Houses.—The thick-skinned varieties of Grapes are now making rapid progress, and require attention in disbudding. As soon as the best shows of fruit can be distinguished, stop the shoots one or two joints beyond the fruit where the space is limited. This may be done when the leaf at the stopping point is about a quarter grown and able to take a fair amount of sap. Pinch the laterals at the first leaf above the bunch, and remove those below, except from the two lowest joints, which pinch at the first joint, and sub-laterals also stop to one joint of growth; this treatment is best where the Vines are somewhat restricted to space. Where the bearing shoots are a good distance apart it is desirable to let the laterals above the bunch extend two or three joints, or until the space is covered with growths, then keep them well in hand afterward. Close the house early in the afternoon with sun heat, maintain plenty of atmospheric moisture by frequently damping the house, and syringe the Vines at closing time, but not after the bunches show. Bottled Grapes hanging in the fruit room should be examined twice a week for decayed berries, and the bottles must be duly supplied with water; keep the room as cool as possible.

Young Vines allowed to break naturally, and assisted with a little fire heat when the buds have grown about half an inch, make rapid progress, but they need not have a higher temperature than 50° to 55° at night, and 60° to 65° by day after the leaves appear, relying mainly on sun heat, with gentle warmth in the pipes on cold days. Remove all buds except one at each break, retaining the strongest, and leave the shoots about 18 inches apart on both sides of the cane. Crop permanent Vines lightly, but supernumeraries may carry full crops.

THE FLOWER GARDEN.

GLADIOLI.—If the corms are kept out of the ground much longer the probability is they will either fail to start strongly or the plants be too late to flower properly. Corms may be planted in the open ground now, and others for succession not later than the end of April. They pay well for liberal culture, and seeing how cheaply handsome varieties can be bought, there is little excuse for their not being grown in every flower garden. If wanted particularly good, they ought to be grown by themselves on well-manured, deeply dug ground, each corm surrounded with silver sand and a little fresh loam. They ought to be buried 4 inches below the surface, and may be arranged 9 inches apart in rows 1 foot asunder. In mixed borders plant either in groups of three or singly. Gladioli are very effective in beds dotted among Mignonette, Heliotrope, and other low-growing flowers.

HERBACEOUS LOBELIA.—These tall-growing species, of which Queen Victoria and cardinalis *ulgens* are the best known, make the finest display if the seed is sown in June and strong plants prepared and wintered in frames for turning out in May, but much may also be done by dividing old stools now. If these have been kept in a cold frame, they may now be split up freely, every young shoot being furnished with roots at the base. Either temporarily bed them out in frames or pot them singly, and strong, well-established plants may be had by bedding-out time. The crimson stalks and foliage are effective, and late in the summer the spikes of scarlet flowers highly attractive. The plants cannot well be too liberally treated at the roots.

HOLLYHOCKS.—Old stools wintered under glass should now be sufficiently advanced for dividing, every young growth furnished with roots being potted singly and kept in gentle heat till well established. Cuttings taken off with a heel, placed separately in 2½-inch pots, and set on a warm flue or the staging very close to hot-water pipes, will root in the course of three or four weeks, but will damp off if kept too close

and moist. Any that have been already struck should, before they are root-bound, be given a shift into 5-inch pots and kept in gentle heat for a time. Seedlings raised early may be grown sufficiently strong to flower late in summer, but they must be kept steadily growing till they are planted out in well prepared borders.

SWEET PEAS.—These are highly valued, and more than ordinary pains have to be taken in raising a supply of plants. This season the seed is of an inferior character, that of choice varieties germinating badly, even in heat, and it is so expensive that it is unwise to risk sowing it in the open, unless the soil is of a warm light character. Plants raised early should be hardened, and more seed sown in 3-inch pots. A group of from five to eight plants well isolated and duly supported will thrive and flower far better than when crowded into rows. Make a successional sowing of common varieties where they are to flower. Give them plenty of manure at the roots, water freely in dry weather, and they will continue to flower abundantly till frosts intervene.

SUNFLOWERS.—There are now quite a large number of annual Sunflowers, including both single and double flowering, tall and dwarf varieties. The more robust of them may be sown where the plants are to flower, this being done late in April; but as they transplant readily, raising under glass is the plan generally adopted, and is really the best for the more delicate varieties, including the charming New Miniature. Sow the seed thinly now or before the end of April in pans or boxes, placing these in gentle heat. Raised thinly and not unduly forced the plants will be sturdy, and there will be no necessity to pot them off.

BALSAMS, RICINUSES, GRASSES.—The first named can be raised in the open, the seed being sown thinly in patches where the plants are to flower not later than the first week in May. A stock will, however, be obtained with greater certainty by sowing the seed in pans and placing these on a warm greenhouse shelf. If the soil is shaded and uniformly moist the plants will soon appear in a sturdy form for potting singly. Ricinuses are also easily raised, and a few of these noble plants are very effective in the pleasure grounds. From the middle to the end of April is soon enough to sow the seed, as it germinates in a few days, strong plants being easily prepared for the open in a month. Sow singly in 3-inch pots, place in heat, and keep the plants near the glass. Give a shift before they become root-bound. Ornamental Grasses may be sown now thinly in patches where they are to grow, and according to their respective heights, or they may be raised in boxes in gentle heat, and duly moved out in patches. Their requirements are of the simplest description, crowding the plants being the mistake most often made. Now is a good time to sow Zinnias under glass.

SOWING HARDY ANNUALS.—If the borders were duly manured and in good condition there should be no further delay in sowing hardy annuals, including Alyssum, Candytuft, Collinsia, Chrysanthemums, Convolvulus, Calliopsis, Godetias, Helichrysums, Larkspurs, Linums, Malopes, Mignonette, Nasturtiums, Nemophilas, Poppies, Sweet Sultans, Tropæolums, Venus' Looking Glass, Virginian Stock, Hibiscus, and such like. Fine down the soil, moisten it if at all dry, form circular patches, and sow the seed thinly, according to the catalogue heights of the varieties. Place a peg or label to each, and cover with fine sifted soil. Keep a good look out for slugs, trapping or otherwise destroying these before they play havoc with the seedlings.

THE BEE-KEEPER.

APIARIAN NOTES.

THE APIARY.

I NEVER had hives in better condition at this season of the year than they are now, yet the bees had not more than four days' working till April 8th. A day or two more will expand the blossoms of the Gooseberry, and another week of fine weather will bring feeding to an end. In two or three weeks swarming will begin if fine weather continue. Already some of my stocks are on the eve of swarming, the earliness of the season being the only preventive.

PUNIC STOCKS.

These are in prime condition. A friend less than a mile distant from me says he has a stock quite crowded enough to swarm. Early swarming will certainly be the rule this year should the weather continue favourable. Much, however depends, on that.

Another bee-keeper lately told me that his Punic stock had, contrary to the theory of "A. H. B. K.," suffered much from dysentery, and, strange to say, it was the strongest hive he had. In regard to dysentery I am convinced that all varieties of bees are subject to it, much depending upon the stores and the construction of the hives, yet some varieties, such as the Carniolan, have a greater immunity than others.

As I was greatly interested in this gentleman's statement I visited him on the 7th inst. When I entered his garden the

temperature would be about 48°, with a chilling easterly wind. The Punic were busy, and the only bees then flying. The hive is a double-cased standard one, and the crown over the bees was not properly covered. The floor is a fixture, and mostly solid. It is simply one of our modern prize hives. The death of the bees was due to the interior of the hive being damp, and not to dysentery at all. It was simply one of the many cases in which the "hooked wire" has to be called into requisition, and the hive being still the strongest is proof positive that when bee-keepers adopt hives of proper construction we have in the Punic bee qualities that will surpass all others and yet surprise many bee-keepers of the modern school.—A LANARKSHIRE BEE-KEEPER.

FOUL BROOD AND NOSTRUMS.

MR. JOHN M. HOOKER takes "A. L. B. K." to task respecting naphthaline and naphthol beta as cures for foul brood. These substances are advertised and sold by his friends, and are claimed to be "sure cures" for foul brood. We have had from the same quarter the following "sure cures": Salicylic acid, phenol, formic acid, menthol, thymol, and now it is naphthol beta. I am leaving out other nostrums that have been boomed to cure the disease, and yet I challenge either Mr. Hooker or anyone else to produce even one case that has been really cured by any one of these nostrums. After all the much-vaunted "cures," it is significant that foul brood was never so common before as now. When bee-keepers have got tired of spending their money on one thing another appears to have been put forward and boomed.

This Journal has always advocated one plan to cure foul brood that has never failed, *i.e.*, by purging. I succeeded in improving the system by feeding the bees and allowing them their liberty, instead of starving them in confinement. Foul brood can never be cured by physic, that I am positive of, nor can disinfecting stamp it out. I have given both these a fair and thorough test. I put seven new foul-broody combs, uncapped, in an air-tight box, put a woollen cloth in the bottom soaked with carbolic acid, fumigated them from time to time with sulphur and carbolic acid, did all this for two years, then put in healthy bees, and the first batch of brood was affected.

Some time ago my neighbourhood was rampant with foul brood, partly owing to trying to cure it by the nostrums recommended. I now keep a sharp eye on my own apiary and also on others round me, and when I find a case of foul brood I insist on being allowed to cure it. Autumn is a favourite time to make my examinations, as I can tell, or rather suspect, by the weight of a skep whether it is diseased. If everyone was to work on these lines the disease could soon be stamped out. I occasionally meet with people who are suspicious that I want to get the best of them, but this idea is soon disposed of by the offer to give them a good sound stock in exchange for their diseased one. This generally acts like magic, and I am allowed to do as I like. I then take it in hand and clear out the disease. When this is done I am mostly asked how much they have to pay. "Nothing," I reply, "as it is to my advantage and interest to keep the disease as far off my own bees as possible. Your one stock might infect all mine. I have had them all infected once, and I don't want them diseased again."

This is how I keep the disease at arm's length all round after stamping it out of my own apiary six years ago. The system means work, not talk; it is the way I stamp foul brood out. What have Mr. Hooker and his friends done to stamp it out? I deny that any stock of bees has ever been cured permanently with any physic without destroying the infected combs, and I again challenge Mr. Hooker or anyone else to name a case. We want something to benefit bee-keepers, not mutual admiration associations.—A HALLAMSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Messrs. W. Paul & Son, Waltham Cross, Herts.—*New Roses and Florists' Flowers.*

Messrs. Ellwanger & Barry, Mount Hope Nurseries, Rochester, N.Y.—*General Plants.*

Mr. F. A. Haage, jun., Erfurt, Germany.—*Cactuses and Succulent Plants.*

Messrs. J. Cheal & Son, Lowfield Nurseries, Crawley, Sussex.—*Dahlias, Chrysanthemums, Bedding Plants, &c.*

Mr. H. J. Jones, Ryecroft Nursery, Hither Green, Lewisham.—*Chrysanthemums.*

The Tottenham Nurseries, Limited, Dedemsvaart, near Zwolle, Netherlands.—*Coniferae, Rhododendrons, Roses, Fruit Trees, Perennials, &c. (wholesale).*



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fungus on Mushrooms (*Inquirer*).—The Mushroom is infested with an offensive mould, *Aspergillus glaucus*. It grows because the spores are present, and find a suitable medium for germination. If the Mushrooms are grown in a house the beds should be cleared out, the walls lime-washed, and every part of the building cleansed and disinfected.

Scientific Gardening (*R. F.*).—The objection to your use of this term was, we think, somewhat pedantic. When either gardening or farming is conducted on scientific principles, we have then scientific gardening and scientific farming, in contradistinction to the haphazard or rule of thumb practice that too commonly prevails. The French use the term rational gardening in the same reference, and the practice is rational because scientific.

Propagating *Lilium giganteum* (*E. C.*).—This *Lilium* is propagated by taking off the young suckers, which come plentifully around the old stool at the time of potting, placing them singly in pots sufficiently large to hold them comfortably, and growing them in a cold frame or greenhouse. This, however, is best done early in February, when they are on the point of starting into fresh growth. Turfy loam from decayed turves one-half, and the other half equal proportions of turfy peat, leaf mould, and sharp sand, well chopped and mixed, but not sifted, make an excellent compost for this, and, in fact, all the Lily family.

Manure for Mushroom Beds (*W. A.*).—Where some grass is used as well as corn and hay the manure from horse stables may be rendered suitable for Mushroom culture by careful preparation. It must not be allowed to heat violently, but be turned a few times till it is sweet, and the mass should be moist but not too wet. A good portion of short stained straw should be included, and possibly a few leaves that may have been collected last autumn might be used with advantage. What you must seek to obtain is a sweet, moist, springy mass. If the fermentation is very active some loam may be mixed in the heap at the last turning.

Sowing *Lapagerias* (*E. D.*).—The seed may be sown at once in a mixture of peat, leaf soil, and silver sand. Before sowing it should be steeped for six or eight hours in lukewarm water or milk. The seeds should be sown thinly in pots or pans, taking care that they are at least 2 inches below the surface of the soil. The pots should then be placed in a warm greenhouse or pit, where the temperature would range from 45° to 60°. As soon as the young seedlings appear they should be potted singly in 3-inch pots, and placed in a close pit or frame for a week or two till established in their fresh quarters. They should then receive the same treatment as greenhouse plants; but after they have become strong enough to bear it, they will require abundance of water.

Cinerarias from Suckers (*F. H.*).—Only really superior varieties are worth saving and increasing by offsets, as seedling plants grow so much more freely. For producing strong offsets the plants should be cut down as soon as their beauty is over, as if left to ripen all the seed that forms this often exhausts them. A cool frame is a suitable position for the cut-down plants, frost of course being excluded, and not an insect must be allowed on the young growths that start from the roots. For encouraging the suckers to root an inch or two of the old soil is removed from the pots and fresh rich compost added and kept regularly moist. We have often planted Cinerarias out in June in rich soil in a shaded border rather deeply, and they have produced a vigorous lot of offsets, which have formed compact flowering plants for the following spring. The suckers, as to potting, watering, and shifting, require the same treatment as plants raised from seed.

Hardy Climbers (*Joe*).—A trellis of stout wire will answer best for your purpose. Before covering the house front with Portland cement drive in iron staples 4 feet apart, leaving them far enough out to project through the cement, so that the wires can be fastened to them after it is put on. There may be a row of staples at the top and bottom and five rows between, or forty-two staples for each space of 20 by 24 feet. Strain the wire diagonally so as to make a diamond pattern, both for stability and neatness, and give it two or three coats of paint. Four feet apart is close enough for the permanent health and vigour of the climbers, and this distance will enable you to have eight plants arranged

in the order they are named—*Lonicera flexuosa*, the sweetest of all Honeysuckles; *Ligustrum japonicum* (Japanese Privet), *Jasminum officinale* (White Jasmine, very fragrant), *Escallonia macrantha*, *Lonicera brachypoda*, almost as sweet as *L. flexuosa*, *Berberis Darwini*, *Jasminum nudiflorum* (Yellow Jasmine, flowering in winter and early spring), and *Ceanothus rigidus*, quite hardy enough for a wall in Surrey, and very lovely in spring with densely clustering pale lavender flowers. One, three, five, and seven are deciduous, the others arranged with them alternately are evergreen. Let the growth mingle, and you will thus have a clothing of green foliage in winter, and the fresh growth and beauty peculiar to the other seasons of the year as well. Plant carefully as soon as possible in rich soil 3 or 4 feet deep and wide, and see that there is an outlet for rain water, which is apt to accumulate about the foundations of buildings.

Planting Carpet Bed (*G. B. C.*).—We do not undertake to recommend methods of planting, but examine proposals that are submitted to us, and suggest improvements when we can. However, as we have a design ready to hand it is inserted (fig. 48), with the method of planting that was adopted with good effect at Hampton Court. The

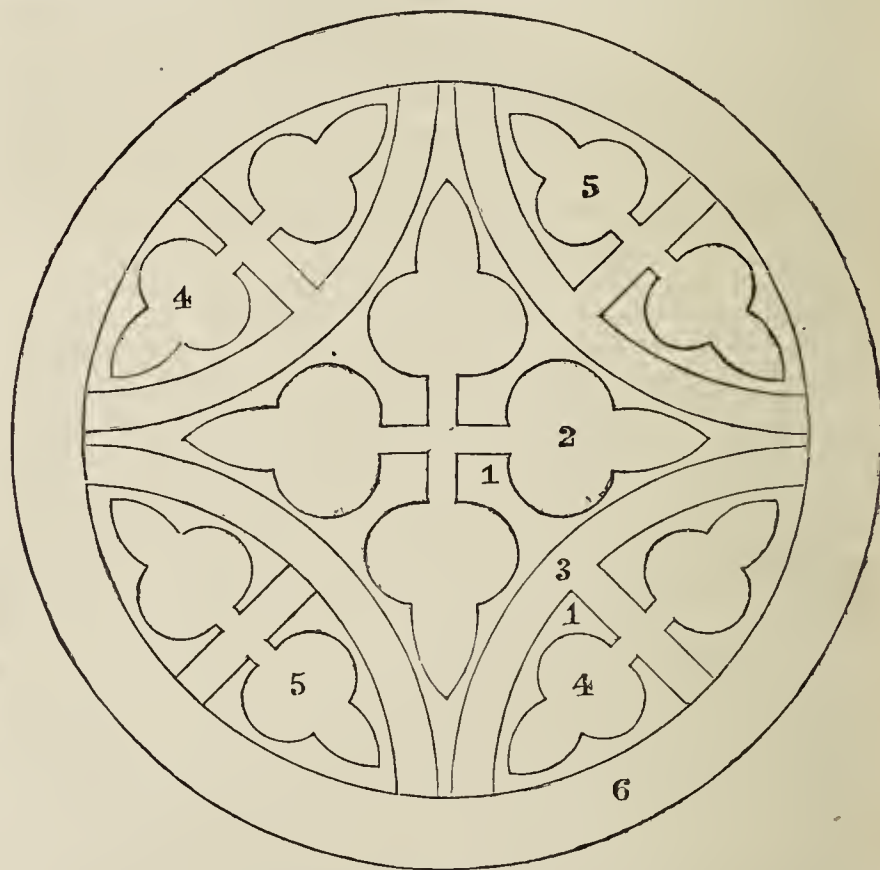


FIG. 48.

1. Groundwork of *Mesembryanthemum cordifolium variegatum*; 2. *Alternanthera amena*; 3. *Iresine Walsleyi* pegged down; 4. *Alternanthera paronychioides* major; 5. *Alternanthera aurea*; 6. Two rows of *Echeveria secunda* glauca and a little *Sedum glaucum* between.

beds are raised 6 inches above the grass, and *Echeverias* and *Sedum* planted in the sloping sides to keep up the soil and form a neat border.

Luculia gratissima (*York*).—This beautiful plant is worthily esteemed for the globular cymes of pink fragrant flowers that are produced so freely under suitable culture. The time of year at which the *Luculia* flowers—viz., autumn and winter, is also a recommendation of considerable importance, for not only is the plant highly decorative, either grown in pots or planted out in prepared borders in a greenhouse, but its value is inestimable for cutting purposes, as the flowers are so continuously and abundantly produced. Such qualities as those mentioned justly entitle the *Luculia* to more general notice and cultivation; and as its requirements are few, any person who possesses a greenhouse or conservatory may safely venture to obtain a specimen. When planted out it rapidly acquires the proportions of a shrub or small tree, and requires to be well pruned after flowering is over; but perhaps it is of more general value when grown in pots of medium size, say 6-inch, and plants in that size pots or a trifle larger may by good treatment be had bearing fine clusters of flowers. With regard to cultivation, it is especially averse to a superabundance of water or the least approach to stagnation at the roots or in the atmosphere. Therefore a porous soil must be provided, composed of loam, peat, leaf soil, sand, and a few pieces of charcoal, thoroughly incorporated; and whether the plant be in a pot or a border, the drainage must be well attended to. When growing freely, or about to flower, weak liquid manure may be occasionally supplied with advantage. Propagation is effected by taking cuttings of the young firm wood, with a heel of the old wood attached, and inserting them in similar soil to that already described, employing rather more sand. They should be placed near the sides of the pots, the latter being plunged in good bottom heat and covered with a bellglass. When the cuttings are rooted shake them out carefully, and pot them singly in thumb or 3-inch pots, afterwards increasing the root-room as the plants advance in growth, but being careful not to overpot them. When thoroughly established they may be grown in any cool or intermediate house where the temperature is not allowed

to fall much below 50° at night at any period of the year. We think you possess the requisite means for growing this plant, and if you succeed, as we hope, you will be delighted with its fragrant flowers.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (*H. T.*)—The small Pear is *Nec plus Meuris*; the large one ought to have been sent before it was rotten, it is probably *Maréchal de Cour*.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*May*).—1, One of the many forms more or less crested of *Pteris serrulata*; 3, *Pteris umbrosa*; 5, *Cydonia japonica*; 6, *Sedum azoideum variegatum*. The numbers had slipped from the others in transit. (*E. H. B.*)—*Medicago lupulina*. (*J. D. D.*)—1, *Begonia albo-coccinea*; 2, *Cystopteris fragilis*; 3, *Abutilon vexillarium*; 4, *Pteris tremula*; 5, *Selaginella Kraussiana*; 6, *Dendrobium Wardianum*. (*C. M.*)—1, *Vanda suavis*; 2, *Odontoglossum crispum* var.; 3, *O. triumphans*. (*J. S.*)—*Lamium maculatum aureum*.

COVENT GARDEN MARKET.—APRIL 13TH.

Market quiet, with prices tending downwards.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, $\frac{1}{2}$ -sieve	1	0	to	4	0	Grapes, per lb.	2	6	to	4	0
Apples, Canada and Nova Scotia, per barrel	12	0	25	0	„ New, per lb.	4	0	5	0		
Apples, Tasmanian, per case	10	0	20	0	Lemons, case	15	0	2	0		
Cobs, Kent, per 100 lbs. . .	0	0	45	0	Oranges, per 100	4	0	9	0		
					St. Michael Pines, each	3	0	6	0		
					Strawberries, per lb. . .	3	0	8	0		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5		
Carrots, bunch	0	4	0	0	Parsley, dozen bunches	2	0	3	0		
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0		
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0		
Coleworts, dozen bunches	2	0	4	0	Salsafy, buundle	1	0	1	6		
Cucumbers, dozen	4	0	6	0	Scorzonera, bundle	1	6	0	0		
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9		
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0		
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0		
Lettuce, score	0	9	1	0	Tomatoes, per lb.	0	4	0	6		
Mushrooms, punnet	1	6	2	0	Turriips, bunch	0	0	0	4		

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	5	0	Marguerites, 12 bunches ..	3	0	to	4	0
Bouvardias, bunch	0	6	1	0	Mignonette, 12 bunches ..	1	6	3	0		
Carnations, 12 blooms ..	2	0	3	0	Mimosa or Acacia (French)						
Carnations, Malmaison, 12					per bunch	1	6	2	0		
blooms	3	0	6	0	Narciss (various), Scilly						
Cineraria, dozen bunches..	6	0	9	0	dozen bunches.. .. .	2	0	4	0		
Cyclamen, dozen blooms ..	0	3	0	6	Pelargouiums, 12 bunches	6	0	9	0		
Daffodils (double), dozen					scarlet, 12 bunches	4	0	6	0		
bunches	2	0	4	0	Primula (double) 12 sprays	0	6	0	9		
Daffodils (single), doz. bnch.	3	0	6	0	Roses (indoor), dozen ..	1	6	3	0		
Eucharis, dozen	4	0	6	0	Red, per doz. blooms..	3	0	6	0		
Euphorbia jacinthæflora ..					Tea, white, dozen ..	1	0	3	0		
dozen sprays	2	0	3	0	Yellow, dozen	2	0	6	0		
Freesia, dozen bunches ..	2	0	4	0	Snowdrops, dozen bunches	1	6	2	0		
Gardenias, per dozen ..	3	0	6	0	Tuberose, 12 blooms.. ..	1	0	2	0		
Hyacinths, dozen spikes ..	3	0	4	0	Tulips, dozen blooms.. ..	0	6	1	0		
Lilium longiflorum 12					White Lilac (French), per						
blooms	4	0	6	0	bunch	4	0	5	0		
Lilium (various) dozen					Violet Parme, French behs.	2	0	3	0		
blooms	2	0	4	0	Czar	1	0	2	0		
Lily of the Valley, dozen					small bunches	1	6	2	0		
sprays	0	6	0	10	English, doz. bunch.	1	0	1	6		
Maidenhair Fern, dozen					Wallflowers (foreign), dozen						
bunches	6	0	9	0	bunches	1	0	3	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Foliage plants, var., each..	2	0	to	10	0
Azalea, per plant	2	0		3	0	Genista, per dozen	6	0		10	0
Cineraria, per dozen ..	6	0		9	0	Hyacinths, per dozen ..	6	0		9	0
Cyclamen, per dozen ..	9	0		12	0	Lily of the Valley, per pot	1	0		1	6
Daffodils, per dozen ..	9	0		12	0	Lycopodiums, per dozen ..	3	0		4	0
Dracæna terminalis, dozen	14	0		42	0	Marguerite Daisy, dozen ..	6	0		12	0
" viridis, dozen ..	12	0		24	0	Myrtles, dozen	6	0		9	0
Erica various, per dozen ..	9	0		12	0	Palms, in var., each	1	0		21	0
" avemalis, dozen ..	12	0		18	0	" (specimens)	21	0		63	0
Euonymus, var., dozen ..	6	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
Evergreens, in var., dozen	6	0		24	0	Spiræa, per dozen	8	0		12	0
Ferns, in variety, dozen ..	4	0		18	0	Tulips, dozen pots	6	0		8	0
Ficus elastica, each	1	6		7	0						

Seedling Plants in variety in pots and in boxes.



PERMANENT PASTURE.

AFTER a recent journey from London through the Midlands we were asked for our opinion upon the present condition of agriculture. The impression from what had been seen from the windows of railway carriages, and the sight of the neighbouring pastures, bare and brown in the first week of April, induced the expression that agriculture was in a very poor way, and was likely to remain so while it was so much neglected. Extravagant economy appears to be mainly the cause of the poverty-stricken condition of so much land; there is a common want of the prescience which guides judicious expenditure, and a failure to grasp the fact that we must give as well as take—give, not in a fitful or uncertain manner, but so wisely and so well that the soil of our fields always contains an ample store of fertility. Then, and only then, are full crops possible, for Nature makes a generous response to such treatment, yielding crops so abundant as afford a rich reward and ample profit upon outlay. Little, if any, of such profit comes to the man who thinks he "saves" by pinching the land. Strange indeed is it how slowly farmers appear to grasp this fact, yet the mere appearance of pasture, its barrenness in winter, its late and slow growth in spring, ought to convince the dullest that something is wrong, to be an incentive to earnest efforts at improvement, the possibility of which is so self evident.

Meanwhile improvement goes steadily on step by step where attention is constantly given to it, and its possibility is fully grasped. Year after year has Mr. Martin J. Sutton continued his trials of Grass mixtures and manure dressings, yet even he is not satisfied. Evidently taking nothing for granted, he brings everything to the test of close experiment and analysis. In the new volume of the Journal of the Bath and West of England Agricultural Society we have an interesting and instructive account of experiments by Mr. Sutton at Kidmore Grange on mowing grass for hay. He has proved that it is more advantageous to mow when grass is approaching the flowering stage than to wait till it is in full flower. His first plot was mown when the grass was only 7 inches high, yet this afforded better—i.e., more nutritious—hay than was had from that in full flower. Dr. Voelcker's analysis showed that hay made a fortnight later, though affording 5 cwt. more weight per acre, was lower in quality. There was clear evidence of deterioration, a loss of albuminoids and non-albuminoids in the process of flower development. This was so evident that Mr. Sutton says, "Had I cut my 200 acres of grass land surrounding these plots simultaneously with the cutting of plot No. 1, instead of waiting till plot 4 was cut (July 15th), the time when hay-making had become general in the district, I should have secured grass, weight for weight, of far greater intrinsic value than the crop I actually mowed, and I should have had the advantage of splendid hay-making weather. The subsequent feed and aftermath, instead of being injured by the half-made hay lying about on the turf nearly the whole of July, would have been benefited by the downpour of rain in that month, which made hay-making so difficult and expensive." To this we may well append Dr. Voelcker's statement, that so far as this experiment goes, it appears that an early cut aftermath is as good as an early first cut, but that a later aftermath is inferior to a late first cut, and that the earlier a meadow is mown the more and better produce will it yield throughout the year.

The practical deduction from this is obviously that for quality

grass is at its best in the earlier stages of growth, well inside the development of flowers; also that it is lowest in quality in autumn, and though a moist warm autumn will induce a free late growth of herbage its nutritive value is low, and it does not nourish cattle, or enable cows to yield such rich milk as does the spring grass, or summer aftermath. Very important is this lesson to every grazier; its teaching is clear and significant to all, especially to those who imagine that something is gained by leaving grass mowing for hay so long as they do after the flowering, and frequently after the seed is ripened. No practice can possibly be worse than this, but it is part and parcel of the general mismanagement of permanent pasture.

On the principle that example is better than precept, we again urge upon landlords the importance of affording their tenants an opportunity of seeing how possible it is to improve grass land by judicious treatment at a moderate outlay. The best way of doing this is to drain and manure part of a piece of poor pasture, leaving the remainder untouched, to bring home the lesson by force of contrast. It is easy to convert poor pasture into rich pasture, but difficult to induce farmers to see their interest in doing it.

WORK ON THE HOME FARM.

An old pupil of ours now managing a large estate with an excellent home farm writes, "The Shropshire flock has finished lambing, results excellent, lambs being as strong in vigour as in numbers, there being an average of two lambs per ewe; Cheviots just beginning to lamb." All the more glad are we to know this, because the writer of such excellent news had his battle to fight about shelter and a due provision of lambing folds, where it was not customary to make any provision of the sort. The results are superior to our own, which do not exceed three lambs to each pair of ewes. Swedes hold out well, but there has been a scarcity of the green tops which we like the lambs to run forward and eat. All pasture rich in fertility is now affording plenty of herbage, and with the extraordinary change to warm weather the cows have been out revelling in an abundance of green food.

The docking of lambs has had due attention. Forward lambs are now making rapid progress, and will be in splendid sale condition early in June. It is well to decide now whether to so prepare them or to keep them on as hoggets for winter folding. We hold that this is a matter worthy of careful thought. Sheep should not be kept on the farm merely for the manufacture of mutton, but for the enrichment of the soil. Under good management sheep folds play an important part in the economy of farm management, and while thus turning sheep to account we can look on at market fluctuations philosophically and bide our time for a profitable sale. The chief point is to keep well within one's means, so as not to be obliged to sell. Reserve force tells here as in most things, and the best form of practical agriculture is common-sense treatment of crop and stock.

Set horse and hand hoes going on foul land as soon as weeds are visible; such work goes on briskly while the surface of the land is loose, and weeds are easily destroyed when quite young. We strongly object to harrowing Barley to destroy Charlock unless the harrows can be followed by a light roller. It is well known that pressed Barley land generally affords a heavy yield; certainly it cannot be right to loosen the spring corn plant in the soil and so leave it to become yellow and sickly.

OUR LETTER BOX.

Cow House (Young Hand).—A liberal amount of space is always desirable for cows; it was the loss of a valuable cow which laid down in the night in a narrow stall and could not get up again that first impressed the value of space upon us. This occurred many years ago, but the lesson has not been forgotten, and we never lost another cow from such a cause. For a really useful, commodious, and healthy cow house it should be 50 feet long by 18 feet wide. Divide this into eight stalls, and you will find them so commodious that at a pinch one or two may be shut off for calving. But calving in a cow house is so objectionable that at one end there should be a door opening into a loose box for the purpose, of the same width by about 10 feet. Beyond this extend the building another 10 or 12 feet for a calf house, making the entire building of a uniform size. You will find this much the cheapest and best way of building. At the other end of the cow house have an entrance into the hay, root, and chaff store of about the same size as the loose box. This range of buildings should face due south. For shelter in the cow yard have an open shed or lodge, with the open side facing west in the yard. Make this about 30 feet long by 18 feet wide, with a rack for hay along the inner side. The yard should be about 50 feet square, so as to afford ample space for a stack of litter, which keeps perfectly dry when well built, and can be cut off in sections as required. There should be a low wide manger in the cow house stalls, with a chain and broad strap for fastening each cow during the milking. Let the floor be of concrete, faced with Portland cement, and for ventilation have four roof shafts, 10 feet apart and 5 feet from the ends, with

openings in the sides above the roof, and sloping boards at intervals to keep out rain. Have a broad gutter along the bottom of the stalls connected with an outside drain, and if liked there will be ample space for a passage along the top of the stalls from the storehouse for feeding. If possible have water laid on to the yard to an open cistern for the cows to drink, and to a cock inside the cow house over a washing basin with bottom plug and waste pipe fixed to the wall for milkers to wash their hands before milking. There should also be a roller close by for a coarse round towel. Have plenty of light from windows placed rather high up in the front wall. These general hints should suffice to guide you in the construction of a useful set of buildings. The calf house should be as we have so often described—a snug building—opening into a warm yard, with a grass enclosure beyond. Be sure and have wide doorways to both cow and calf house, the doors to run along the wall side on wheels, not to open on hinges. Haymaking is out of the question with so little pasture as you have.

Piggery (Young Hand).—In this matter you have the alternative of simply making low commodious lodges, open on the south side, with yards in front, one for the bacon pigs, another for porkers, and a third for sows, with a breeding pen at one end, having a door opening into a court, but which may be shut in very cold weather. The boiler and meal house is a square room sufficiently large to hold a supply of meal, with a copper, furnace, and shaft in one corner; this is a thing any bricklayer can contrive for you. We have had hundreds of pigs reared and fattened in similar places perfectly well, and they answer all practical purposes. On the other hand you may have snug sties, with a passage at the back from the meal house, and feeding troughs into which food is emptied from the passage, with an open court in front. About 8 feet square is a useful size for such sties, but they may be of greater length according to your requirements. We have concrete floors, faced with cement, in both sties and courts, and the enclosures may be of masonry or timber at will. Whatever is used it should be substantial, as pigs, especially sows, soon destroy a weak building.

Manure for Grass Land (A. M. Henley).—We presume you are a new reader, as mixtures of chemical manures for pasture have often been specified in our columns at the best time for applying the dressings. This we have found is in February, as the mineral ingredients require time to dissolve for appropriation by the roots of grasses and other plants. We have found the following mixture excellent, and we repeat what was said in a previous issue. We require a well-balanced mixture of mineral and nitrogenous manure, in which nitrogen, potash, and phosphoric acid (the essential elements of plant food), are all present in sufficient quantities to ensure a full crop in any soil. We take, therefore, as our chief ingredients 1 cwt. nitrate of soda and 1½ cwt. mineral superphosphate, and add as auxiliaries to render it a complete manure, ¼ cwt. muriate of potash, and ¼ cwt. steamed bone flour. Taken at ton rates this manure can be had put on the rail at about 20s. per acre, to which there would be some additional outlay for carriage, mixing, and using, for the manures should always be had separately and mixed at the farm under careful supervision. Nitrate of soda always contains many large portions which must be pulverised by a sharp stroke or two with the back of a shovel. We have found this sufficient without sifting when the manure is sown broadcast.

Manure for Root Crops (J. L.).—For Mangolds and Swedes first place the farmyard manure in the furrows, then scatter the chemical manure mixture in the furrows by hand. Split the ridges to close the furrows, and drill the seed along the tops of the ridges so formed over the manure. For white Turnips use 4 cwt. of mineral superphosphate and 3 cwt. of nitrate of soda per acre. Sow this broadcast and harrow it in just before drilling the seed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

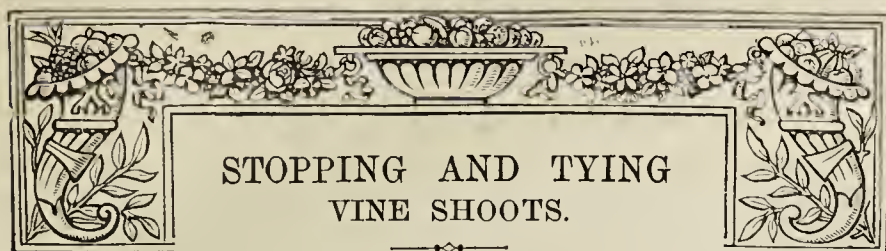
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
April.			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	3	30.286	53.0	45.2	N.E.	41.6	67.2	35.2	106.7	25.2	—
Monday ..	4	30.023	53.8	46.4	N.E.	42.3	73.0	37.7	108.1	28.6	—
Tuesday ..	5	30.009	56.9	54.6	S.E.	44.1	71.3	40.3	106.0	31.5	—
Wednesday	6	29.973	55.6	49.4	N.E.	45.4	69.1	44.0	106.8	34.4	—
Thursday ..	7	29.951	55.1	47.1	E.	46.4	69.2	41.1	108.3	33.6	—
Friday ..	8	29.980	45.9	44.1	N.E.	47.2	68.7	39.3	107.1	35.4	—
Saturday ..	9	29.982	50.9	46.2	N.E.	47.8	64.2	39.7	105.2	34.8	—
		30.029	53.0	47.6		45.0	69.0	39.6	106.9	31.9	

REMARKS.

3rd.—Brilliant and warm throughout.
4th.—Hazy till 10 A.M., then bright and warm; lunar halo in evening.
5th.—Sunny and warm, but generally a little hazy.
6th.—Brilliant throughout.
7th.—Sunny and clear throughout.
8th.—Overcast till 9.30 A.M., then almost unbroken sunshine.
9th.—Bright sunshine throughout.

A very fine rainless week with high daily maximum temperatures. N.E. wind and scarcely any cloud.—G. J. SYMONS.



THE stopping of Vine shoots should be performed in such a way as to give as little check as possible to the Vines. The aim of the cultivator ought to be, especially when dealing with the fruit-producing shoots of a Vine, to allow them to develop as many primary leaves as can be evenly distributed over the trellis without crowding. The reason for adopting this practice is that every well-developed healthy leaf creates corresponding activity in the roots of the Vine. It is not through the roots alone that plant life is sustained, for the leaves also play an important part in sustaining health and promoting energy by the invigorating effect of the atmospheric gases they inhale. It is therefore not difficult to understand that if, by reason of overcrowding, the leaves become thin in texture the roots are also prejudicially affected, and the Vines suffer. We have also to remember that the extension of Vine shoots causes a corresponding extension of the roots, therefore it is important that the young shoots should not extend beyond reasonable bounds and then be ruthlessly cut away, because if root and top growth is carried on in a proportionate ratio, the reduction of the one must produce enfeeblement of the other. With these principles to guide the operator the stopping and tying of Vines may and should be performed in a manner that will ensure robust health and fruitfulness.

The number of leaves allowed beyond the bunch must depend in a great measure upon the distance the Vine rods are apart, and the number of joints produced before the bunch shows. The stopping should generally take place at two leaves from the bunch, but in some instances it is necessary to stop at one leaf, while in others there is room to allow three or even four leaves, and the Vines will be all the better for these additions, which tend to increase root action. When dealing with very strong shoots I prefer to stop at two joints in places where there is room for extension, and remove the lateral at the extremity of this shoot as soon as it can be seen; this will cause the main bud to break and supply a shoot to fill the vacant space remaining. This practice prevents the possibility of a few strong shoots robbing the weaker growths, which they certainly would do if allowed to extend till the majority of the shoots were stopped. When the spurs on Vines are well set out in the first instance, as advised on page 234, the advantage of being able to train the shoots in regular angles between each other will now be apparent, as a greater number of primary leaves may be secured without crowding or twisting the shoots. All sub-laterals should be removed below the bunch, unless the shoots, as is sometimes the case, show a thinness in the foliage at that point; in such cases they may be stopped at one joint, the way in which those beyond the bunch should be treated. Stopping should be taken in hand as soon as the shoots have grown to the requisite length, the points can then be taken out with the finger and thumb: this, instead of giving a check to the shoot, will simply cause its energies to be concentrated in it. The shoots left for further extension can be stopped when they have made the requisite growth.

Although it is desirable that the points be taken out of Vine shoots thus early, it is by no means necessary that the tying-down process should begin at the same time, unless they are in danger of coming in contact with the glass. Unfortunately this is often the case by reason of the rods being trained closer to it than they

need be. Many of our best cultivators train their Vines from 2 to 3 feet from the glass, and do not tie down the shoots until the Grapes are set. There is then little danger of losing a spur in consequence of the shoot being forced from its socket if drawn down a little too far at the first tying. There are few gardeners who have the trellis fixed far enough from the glass to justify them in deferring the tying so late; they must, therefore, proceed with caution, only drawing the shoots down sufficiently to prevent their reaching the glass again for the next few days. Where shoots spring from the Vines in an almost perpendicular position, all that can be safely done is to fasten the tying material near the extremity and slightly bend the point. Such shoots require daily watching to bring them down without accident. We usually go over the Vines three times, bringing the shoots down as above described in the first instance, five or six days later drawing them down a little farther, and completing the operation either just before or as soon as the Grapes have set. In the case of Muscats I think it a good plan to leave the final tying till then, as the sun reaches the bunches better while the shoots are in a partially upright position. In fastening the tying material to each shoot care must be taken to leave room for the swelling.

All things considered morning and evening are the best times for doing this kind of work. The shoots are brittle and liable to break; still, if the operation is performed without accident, there is no danger of their breaking after the sun shines, because it gradually toughens them. On the other hand, if the tying is done during bright days, the shoots being slightly limp and tough, there is very little danger of their breaking at the time, but they ought not to be brought down quite so far as it appears easy to bring them, because they gradually stiffen and thus tighten the tying material as the cool air of evening refreshes them, the result sometimes being that the shoots are forced from the sockets. With due care and attention to these details they may be safely tied down whenever they are ready for the operation, let the weather be what it may. Gros Maroc, Trebbiano, Golden Queen, and Alicante are the most liable to breakage. In cases where a blank is produced by the loss of a shoot the lateral from the spur below should be allowed to extend without stopping. This may be easily inarched on to the old rod in the usual way, and if bound round with moss and kept damp by syringing three times daily for a week or two a satisfactory union will be effected, and in the future a healthy spur will be formed.—H. DUNKIN.

YELLOW BEDDING CALCEOLARIAS.

It is a matter of great regret that these fine bedding plants are so much subject to a disease which causes them to "go off" shortly after being transferred to their summer quarters. No other race of bedding plants yet introduced supplies such bright and telling shades of yellow as do these Calceolarias. They can, moreover, be preserved during the most severe winters without the aid of artificial heat. With these good qualities to recommend them they ought not to be discarded until every possible means has been tried to overcome the difficulty pointed out, and I hold the opinion that this difficulty may in the majority of instances be conquered.

Recent experience has convinced me that this disease is brought about by two mistakes in culture—first, by coddling the plants too much during the winter and spring months, and next by planting them in their summer quarters at too late a date, in which case the long hot days of summer are upon them before they become established, the consequence being that many of them succumb. Our plants are at present in a most promising condition, and have been grown throughout in a very hardy manner. The past winter has been severe enough to test the amount of cold they will endure without injury. Although wintered in an ordinary cold pit, they have on no occasion been given more protection than is

afforded by a covering of hay or bracken placed over the glass, the sides of the pit receiving no covering whatever. We have at various times registered from 25° to 28° of frost. Whenever the thermometer in the shade has risen above freezing point air has been afforded. Since the very severe weather of midwinter they have received no protection, as I am convinced that so long as we do not get more than 10° or 12° of frost *Calceolarias* in frames at the foot of a south wall, or in pits in the most exposed positions, are better without covering. With such treatment the plants will by the present time be sturdy, strong, and in the right condition for planting in temporary beds. Prepare beds 4 feet wide, either by making a trench 6 inches in depth and throwing the soil on each side, or by forming temporary frames above the ground with board and stakes.

The soil used to plant in now should not be too rich. Some make a point of mixing a quantity of half-decayed manure with it, but this cannot be of benefit to plants which are only to remain in this position for a few weeks, and it moreover hinders quick root production. Ordinary garden soil is very good for the purpose, but if inclined to be heavy mix a little leaf soil and wood ashes with it. Plant 6 inches apart, and press the soil firmly about the roots, but take care not to injure the stems of the plants in so doing. The first bright morning after the planting is performed give a good watering, place a few cross stakes over the frame, and cover with mats each night till the time arrives for hardening the plants. Given this treatment they will be ready for placing in their summer quarters by the second or third week in May. Having been grown hardily from start to finish, and planted out thus early, they are better able to resist the heat of summer when it comes than they would otherwise be. These remarks apply to varieties of the floribunda type. *Amplexicaulis*, a fine tall-growing yellow variety, is more tender, and should have a frame devoted entirely to it.—FLOWER GARDENER.

SULPHUR VERSUS WHITE FLY.

I was interested in reading Mr. W. P. Wright's remarks on Tomatoes (see *Journal of Horticulture*, March 24th, 1892, page 215), when he says Tomato growers have found a remedy in carbolic soap for stamping out a very troublesome pest, the white fly. If this remedy is found to be permanent it will be hailed with delight by Tomato growers. I may say that the fly in question has given me more trouble than any insect pest that I am acquainted with. It has not been confined to Tomatoes, but forced Beans, Strawberries, and other plants have suffered a good deal, so much so that I have had serious thoughts of discontinuing growing some very useful winter-flowering plants. Although we have from time to time used the remedies usually recommended—such as fumigating with tobacco paper and cloth, and carbolic soap, and they have been temporarily effective in keeping the fly under, young broods would again appear at short intervals. So persistent have the attacks been that I began to look upon the remedies as almost as bad as the disease, for the repeated fumigating seemed to destroy most of the Tomato blooms as they opened, so that we could not always depend on securing a good set of fruit under glass, and those planted out against vacant spaces of the garden walls have also suffered more or less. This fly is so tenacious of life that when Strawberries have been brought in for forcing it has usually been introduced with them, although the plants have been exposed to all the severe frosts we have had of late years.

But a brighter future seems to be at hand, and so far as my experience goes we are in a fair way for stamping out this pest, at any rate under glass. The plan I have adopted for the last three or four months, where the fly has been troublesome, is to mix flowers of sulphur in water to the consistency of paint, and apply this to the hot-water pipes, not smearing it on too thickly, nor when they are very hot. If the flow pipes are too hot it had better be put on the return pipes, which, as a rule, are cooler. It is best to apply it in the evening when the houses are closed for the day. The frequent syringing of the houses will cause the sulphur to be washed off the pipes, and it must be renewed as occasion requires. I am no advocate for using sulphur on hot-water pipes where it is not necessary, and particular attention should be paid to the ventilation of the houses in bright sunny weather where sulphur is used. We have applied it where Vines, Cucumbers, Melons, and Kidney Beans have been growing, and have not perceived any ill effects from it. The more humid the atmosphere of the houses the more effective will the result be.

Wherever it has been applied it has acted almost like magic. Tomato plants that were infested are now perfectly clean and healthy. It is a rarity now to see a white fly where the treatment (or as I prefer to call it the golden remedy) has been carried out. For this wrinkle I am indebted to my foreman Mr. W. Modrol,

and not having heard or read of the remedy being applied before for the stamping out of a troublesome pest must be my apology for writing this letter—G. R. ALLIS, *Old Warden Park, Biggleswade*.

[Mr. W. Iggulden was the first to recommend the practice advocated in these columns.]

DAFFODILS ON THE PYRENEES.

UNDER this heading, on page 276, I read a note regretting the destruction of wild Daffodils in the Basses Pyrenees. I have long been acquainted with the department of the Basses Pyrenees and its Daffodils, and have just returned from a visit of three months at Biarritz, during which I devoted much of my time to investigating the local natural history of the varieties of *Narcissus* said to be wild there. The indigenous kinds generally prevalent there are chiefly two—*N. bulbocodium* var. *citrinus*, and *N. pseudo-Narcissus* var. *pallidus præcox*. The first of these is so abundant even in the immediate neighbourhood of Biarritz, and it extends over so much ground, reaching to nearly 3000 feet high on the mountains, that in spite of English orders for hundreds of thousands yearly, it is not in danger of extermination. The pseudo-*Narcissus*, however, has been severely taxed, especially round Bayonne. A veteran botanist of that town, Dr. Blanchet, who has known the district from almost the beginning of the century, and formerly lived at Dax, has told me many of his recollections of the genus *Narcissus*, which has suffered much from the advancing encroachments of new enclosures and cultivation, but still more in recent years from eradicating collectors for the English market.

In a local botany which he published last year the *Narcissus* is the subject of a note of which I give the substance:—"The plants of this charming family, which have the misfortune to flower in early spring, and which formerly were the pride and ornament of many estates round Bayonne, will soon be things of the past. For some years they have been the object of a reckless commerce which has now assumed the proportions of a veritable exterminating vandalism. Every year they are exported across the channel by hundreds of thousands, and the collectors seem not to know that they are bringing about their own ruin." For all that, *pallidus præcox* is by no means extinct yet in any of the woods, even close to the town of Bayonne, in which it formerly grew. Indeed it multiplies so fast from seed, and the seedlings flower in three or four years, that it only wants a few years' holiday to be as abundant as ever. It is now preserved partly by the thickness of the coppice in the woods—many of them consisting of *Robinia*—in which it grows, partly by the increasing protection now given to it by the proprietors in the way of fences of barbed wire and dense thorns. Besides, I am glad to find that it is being largely cultivated for the English market at Biarritz. I saw large enclosures amounting together to several acres full of it, and when the owners of these become aware how easily it comes from seed they will hardly go to the expense of having the wild bulbs collected as they now are annually from the neighbourhood of Peyrehorade, Hasparren, and other less populous parts of the Basque country.

Some day I hope to have time to put together my notes on the *Narcissi* said to be native in the south-west of France, but I am afraid they would be of interest only to those who care for the natural history of the genus.—C. WOLLEY DOD, *Edge Hall, Malpas*. [Pray do.—Ed.]

ROTATION OF CROPS.

(Continued from page 254.)

SECOND YEAR.—*Cereal Crop*.—Spring-sown Barley or Oats. These are chosen because the land is clean in consequence of the fallow crop, also through early seeding affording little opportunity of preparing the land. When the crop preceding—the first year's cleaning one—is removed so as to admit of autumn ploughing there is less difficulty in preparing a seed-bed, as the winter weathering breaks up the stubbornest substances, and the frost so acts on the water in its interstices as to highly comminute the soil, and, with care not to work it until in a proper condition in spring, a grand tilth is forthcoming; yet it is only necessary on heavy land, which can hardly be too much weathered, unless containing a very large amount of lime, and oxide of iron and alumina, such becoming puddles when weathered and saturated with rain. Those soils are comminuted enough. Light land only needs shallow ploughing, as such is easiest mellowed by the weather, and reduced to the necessary tilth; all Barley requires is enough tilth to cover the seed well, and only fairly light below, so as to give the plant the needful "grip" of the soil. Barley succeeds on good land—not too heavy; when too stiff Oats may take Barley's place in the rotation, also when the land cannot be got into proper order for Barley, which

must have a mellow tilth. Oats are hardier and more vigorous than Barley, and take to a rougher seed-bed and moister soil.

Barley is a surface-rooting plant, relies almost wholly on the residues of the fallow crop, and derives its nourishment—nitrogenous and mineral—from the stores near the surface. Possibly no crops take more nitrogen from the soil than Barley and Wheat. The nitrogenous supplies remaining from the fallow crop are sufficient for the Barley crop, and frequently enough for a Wheat crop, which is sometimes taken in the second year, sown, of course, in autumn, in a heavier soil, consequently closer, and gets hold of a much wider and deeper range of soil, having at least four months more time to possess itself of the soil than Barley. This admits of Barley following Wheat directly on heavier soil, because there is time to produce the needful tilth for the Barley, and the Wheat stubble lightens the heavy soil so that the Barley crop is provided for on the otherwise too heavy soil, and the yield is satisfactory. This second corn crop in direct succession can only be taken by those well acquainted with the capabilities of the soil, for the fallow crop may not leave enough "condition," nor be clean enough to warrant its practice. Both Wheat and Barley are exhausting crops; besides nitrogenous manures they require phosphatic, particularly the Barley, which is more benefited thereby than is Wheat under similar conditions of soil. Indeed, Barley is the most particular of all grain crops. If the land is too high in condition the plant becomes too gross, and produces a coarse sample of grain; and, though generally taken after roots, it is sometimes considered better to take a Wheat crop first, especially when the root crop has been heavily manured, and the heavy crop eaten by sheep on the ground. Thus the Wheat crop after the fallow crop brings the land into proper condition for producing an even and better sampled Barley crop.

Now we must look ahead. The fallow crop is restorative, cleansing, recuperative. Our present one is exhaustive, and that must stop, or the land will become unprofitable and foul. The requirements of stock also must be provided for, green food that is for summer use, hay for winter use. This crop becomes profitable only, unless employed as a source of manuring, in the second year, therefore it is sown about the same time as the Barley or Oats, and establishes itself whilst the second-course crop is maturing. This crop can only succeed where the land is clean, consequently the importance of the fallow crop to the third-course crop.

THIRD YEAR.—Clover or Leguminous Crop.—This, as regards Clover, requires a sound and firm seed bed, which is provided when sown about the same time as the second-course crop, and growing along with it a year is gained. The third-course crop may not be taken on foul land; hence, when the ground has not been sufficiently cleaned by the fallow crop as to be followed by Clover, a Pea crop if the land be light, or a Bean crop if the land is heavy, may be taken after the Barley. This gives an opportunity of cleaning the land before seeding, and of still further cleaning it by a short (bastard) fallow in autumn directly the crop is cut, which also serves to prepare it for Wheat. Thus the rotation is broken and the land cleaned, which is in favour of the Wheat, because the Pea or Bean crop is deep rooting and nitrogen gathering. Clover also may not always be a suitable crop after fallow through the land having become Clover sick (a disease due to minute organisms—eelworms), and ground in that state requires several years to recover so as to allow of its profitable growth again. The Pea or Bean crop permits the land to recover its health after Clover sickness, yet in light silicious soil the Clover may not come oftener than once in eight or ten years. Eelworm (*Tylenchus devastatrix*) is better avoided than cured, and its attacks mainly arise through a deficiency of lime and potash, whereby the Clover is unable to assimilate nitrogen, and the remedy is sulphates of potash and ammonia, with phosphate of lime, yet the most certain method is to cease growing Clover.

FOURTH YEAR.—Wheat Crop.—September closes the third-course crop, and the land is then stored with nitrogenic and potassic foods for the Wheat crop that follows the Clover. Leguminous crops gather nitrogen and their deep roots bring up potash, therefore the roots and stubble supply nitrogen and potash, and other food ingredients, which sustain the fourth-course crop. The Clover ley is ploughed in September, and the Wheat sown in due course, but sometimes the Clover ley is utilised for sheep in autumn or early winter, then Oats are substituted for the Wheat, the Oats being sown in spring. The Wheat crop takes about all there is left of manure put in the land with the fallow crop, and needs a thorough renovation in manurial elements, stirring and mixing its ingredients, and cleansing it of its foulness.

Such is a Norfolk (so called) four-course rotation. There are many modifications, some better because suited to particular circumstances, and there are others much worse through everything being taken off the land and no adequate return made to the soil in

the shape of manure, and when that happens it is put down to grass, in the worst possible condition and order, and the least that may be said is it has gone out of cultivation. Not so the land under an easy, well-founded rotation, which, though not applicable to all soils, is such that any competent practitioner may vary it to suit his needs and markets.

Some of the modifications may be usefully glanced at. One of the most common is Wheat after Potatoes, and as the land is clean all that is necessary is a shallow ploughing, and in some not that, merely drag-harrowing. The succeeding crop is roots—Turnips, Swedes, Mangold Wurtzel, Cabbage, and then comes the Wheat again, Potatoes and Wheat in alternating years often proving a profitable and cleanly rotation. Another crop is Peas or Beans, as the land is friable or heavy, Barley or Oats following the Peas, and Wheat the Beans; then comes a root crop, after that cereals. In that way, and with "stolen" crops, the rotation can be modified to almost any extent without prejudice to the soil's fertility, and it is on these lines—namely, the modifications of a four-course system, that small holdings, if they are to pay and their occupiers benefit, must be cultivated, not on farming lines, but on dairying, poultry rearing, fruit and vegetable growing—horticultural rather than agricultural principles.—G. ABBEY.

(To be continued.)

ROCK GARDENS.

(Continued from page 236.)

THE Alpine section of the family of *Dianthus*, one so widely extended and so generally admired, contains some beautiful things. I do not know amongst the truly alpine plants a more delightful gem after *Gentiana verna*, which I would crown queen of them all, than a well-grown clump of *Dianthus alpinus*. Some of these are indeed natives of our own islands, and might, therefore, perhaps be hardly entitled to the claim of being alpine; yet as we admit *Gentiana verna* to be a true alpine, although a native, so we must class those of this family as such which are to be found in our native flora. I am afraid that there is a good deal of confusion amongst the purveyors of alpine plants as to the various species. I have received for *D. alpinus* plants that bore no resemblance to it either in foliage or flower, and have been supplied with *D. deltoides* when I ordered *D. neglectus*. Mistakes will occur I know, but I fancy that they are very frequent in this family.

Dianthus alpinus is, as I have already said, one of the most charming of alpine plants, but I have not found it an easy one to keep. I have started it in peaty soil, and in leaf mould and light loam; in both of these soils it has done well for a time, but then it has disappeared. We know how fond wireworms are of the whole tribe, and what a plague they are to the Carnation and Picotee grower, and I imagine that this has had something to do with their disappearance. In a dry summer, too, they are apt to suffer if the watering is overlooked, which it is likely to be when so many things cry out for the watering pot. However, I fancy it is one of those alpine plants which are not very long lived, and that their disappearance may be in the natural course of things. When it is in health and vigour, such as I have had it at times, it is a veritable gem. Each flower stem bears but one flower and does not rise more than an inch above the foliage; the flowers are about the size of a florin, pink spotted with rose, and although only produced singly they cover the whole of the foliage, forming a beautiful close pink cushion. I remember seeing some large patches of it at Messrs. Backhouse's of York which live in one's memory as a dream of beauty, and I hope again to have the plant in the same vigour that I once had.

Dianthus cæsius, the Cheddar Pink, may have been seen in its native habitat, although like a great many other plants it has been sadly diminished by those baleful persons the guides, who offer every visitor to Cheddar a plant, of course for a consideration. In some cases plants have been quite exterminated thus. I know localities in this county (Kent) where *Osmunda regalis* used to be found, but alas! not a trace of it now remains, although people might have left it alone and bought it for a shilling at a nursery. And the Edelweiss has been so treated in Switzerland, where in some cantons a penalty has been affixed to the attempt to take a plant of it from its native locality. If travellers would only patiently wait until they get back to Geneva they can always obtain it at the Jardin d'Acclimatation for a trifle, with the probability that they will be able to bring it safely home, which they would hardly be able to do with the plant uprooted from its native locality. But to return, *D. cæsius* is one of those plants which thrive admirably on walls, a situation in which several of the family rejoice. The flower stems are about 6 inches in height,

and the flowers are very fragrant. It is impatient of wet, dying in the open border in wet winters. When planted on a rockery should be placed between two pieces of stone so as to keep it tolerably dry.

Dianthus cruentus I have not grown, but hope to do so this season; it is believed by some to be the parent of our garden Sweet Williams.

Dianthus deltoides.—This, another native species, I have on the other hand grown rather too well. It is one of those plants which I have alluded to as becoming a nuisance on the rockery, springing up in all directions, and coming up where it is not wanted. In habit it is very pretty. The flowers are very freely produced, so freely, indeed, that although undoubtedly they are small, yet they produce a very pretty effect. They seem, however, to rejoice in the sunlight, and keep closed on a dull and sunless day, or shut up very early. The colour is a bright pink with dark rim round the eye. There is a white variety of it which I do not think is nearly so pretty, but it is desirable for its colour.

Dianthus neglectus.—This is one of those plants on which the ingenuity of some purveyors of alpine plants has been extensively exercised. I have raised plants which flowered on stems 6 to 8 inches high, and were not at all like what I know they ought to be. Its foliage differs considerably from that of *alpinus*, being more like short wiry grass, and the flowers rise only from 1 to 3 inches high above the foliage; indeed when in flower it bears a close resemblance to *Dianthus alpinus*, differing a little in the tint of colour. There are some other species which are grown by many cultivators of alpine plants, such as *sylvestris*, *plumarius* and others, but I only desire to give notes of those which I have myself tried, and succeeded or failed in growing.

DAPHNE.—Of these delightfully sweet-scented dwarf shrubs, so dwarf that they may be considered fit subjects for the rock garden, there are two which have succeeded very well with me. One is

Daphne Cneorum.—This grows from about 6 to 10 inches high, being somewhat trailing in its habit, but very compact. The flowers are abundantly produced, rosy-lilac in colour, and most deliciously fragrant. It thrives in peat soil, but I have seen it doing well in strong loam.

Daphne Blagayana is another most charming and fragrant shrub. The colour of the flowers is white, and they are produced in dense terminal clusters. It seems to be indifferent as to whether it is grown in peat or loam.

Dodecatheon Meadia.—This peculiar looking flower, called (why, I know not) the American Cowslip, is a quaint looking and pretty flower. The plants seem to rejoice in a moist peaty soil, at least that is where it has succeeded with me. My clump of it is some ten or twelve years old, and has never been moved; the flower stems rise to about the height of 18 inches, and the pink flowers are produced in abundance. The petals turn back from the narrow pointed centre of the flower, much in the way of the Persian Cyclamen of our greenhouses; but as it is much more pointed it gives it a singularly quaint appearance, and is always sure to strike anyone who sees it for the first time.

Dryas octopetala (Mountain Avens) is another native plant occurring abundantly both in Scotland and the west of Ireland. Its foliage is particularly neat and dwarf, creeping along at will, and it has been used in some places as an edging to flower beds, where its neat foliage and snow white flowers make it very acceptable. A lady correspondent in the west of Ireland tells me it grows freely on the limestone intermingled with *Gentiana verna*, and if they both flower at the same time it is impossible to conceive a more charming combination. It did very well with me for years, but perished as many things did in the dry Jubilee summer of 1887. I have, however, again procured it through the kindness of my correspondent from the west of Ireland, and hope to again grow it successfully.

Delphinium nudicaule is the only one of this beautiful tribe, so many of which form such conspicuous objects in our gardens, that seems dwarf enough for the rockery. It has the distinction of differing from most of its genus in colour, which is a dull scarlet, the flower stems being about 18 inches high. I am not at all sure whether it has any claim to be more than a biennial, but at any rate it is easily raised from seed, and is worthy of a place in the garden or on the rockery.

Erinus alpinus is one of the easiest grown of alpine plants, and has lilac flowers (there is also a white variety). The habit of the plant is very dwarf, and as it seeds freely it will soon assert itself on the rockery. I imagine the plant is short-lived, and that seedlings spring up round it every year; at any rate it will not easily be dispossessed when once it has taken hold.—D., Deal.

(To be continued.)



MARÉCHAL NIEL ROSE.

My experience of this grand yellow Rose differs appreciably from that of "Rosa." When I grew these Roses in a cool house at Bedford I could never get enough to satisfy the demand, and good blooms always secured not only a good price but a much better figure than did any white or coloured Teas. Probably why so many find the Maréchal not so very profitable is that they grow it in heat, hence have their flowers in when everybody else has. That is just where market growers make so considerable a mistake. There is always a much better demand for these Roses in the dinner party season—that is, May and June—than in March and April, when all forced flowers are ready.

I always had not only good blooms produced on trees that carried strong wood, through being hard pruned early in the summer, but cut with their stems from 6 to 7 inches long. These were specially favoured because they kept so long in water. Maréchal Niel grown in a cool roomy airy house without any heat blooms naturally about a month before Roses open on south walls outdoors, and at the very best season of the year. As soon as the bloom is over the flowering wood and branches should be cut back very hard; indeed, this Rose wants to be treated as Vines sometimes are—on the long rod system, causing new stout shoots to be produced, which should make from 6 feet to 10 feet of growth during the season. Then noble flowers result. When, as is so often seen, the wood is hard and spindly, no wonder the flowers are poor and of little value.—A. D.

ROSE JUDGING.

I SHOULD like to draw from our leading rosarians some expression of opinion as to what degree of fadedness (if any) constitutes a bad Rose. The instructions of the N.R.S. to judges seem perfectly clear; but I find myself in some difficulty when I am told by a great Rose authority that a faded flower of good form is entitled to one or two points; while another, whose opinion of Roses is, I presume, second to none, states ("Rosarian's Year Book," 1889, page 10) that such a flower is a bad one, and should have one or two points taken from it. It is not a question of form *v.* colour, and I presume every real judge of Roses would give precedence to form; but I want to know whether judges are to mark a faded flower of still good form as a bad Rose, or reward it with one or two points as a good one.—HENRY B. BIRON.

A SHOW AT MOSELEY, BIRMINGHAM.

A GREAT Rose Show is announced to be held in the Moseley Botanical Gardens and College Grounds, Birmingham, on July 19th and 20th. The schedule to hand shows that some handsome prizes will be competed for. In the class for seventy-two cut blooms four of £10, £7, £5, and £3 are offered, while in those for forty-eight and thirty-six trebles the prizes are £6, £4, £3, and £2 respectively. For a group of plants £10, £8, £6, and £4 are offered. These should bring good competition, and they are supplemented by others, while amateurs are well catered for. The Committee have been fortunate in securing Mr. William Dean's services as director.

MULCHING NEWLY PLANTED APPLE TREES.

It is the accepted rule in all well managed gardens to apply some partly decayed manure to the surface soil directly the trees are planted, the object being twofold—protecting the roots from frost during winter, and maintaining the soil in a moist state during the summer months. This not only minimises the labour in applying water to the roots in the case of excess of drought, but keeps the soil in a better state than when artificial waterings are resorted to. For these two reasons mulching newly planted trees is undoubtedly a good practice; but there is another aspect to the question which deserves a thought—viz., the evil which results through the prevention, by the mulching, of the sun acting on the soil to warm the roots near the surface. Many persons, I fear, do not think of this. The mulching is given to the trees to protect their roots in winter, and allowed to remain there until decay has taken place, but if it were removed the first week in May or earlier, according to the state of the weather, being simply drawn off to one side and there allowed to remain for at least three weeks, when it could be replaced provided hot and dry weather necessitated its employment for maintaining the soil in a moist state, it would be better. Trees that are planted high—as they should be in soil which is at all heavy or wet—are much more likely to suffer from drought than those which have their roots deeper in the soil.

The difference exhibited in the growth of trees the first year where attention is paid to such an apparently small matter as the temporary removal of the mulching to admit of the soil being warmed, and where this is neglected is surprising. The more I see of Apple culture, good and bad, the more I am convinced that the whole secret of success lies in attention to the surface roots, which really are the feeders of the trees

and fruit also. In the case of heavy soil it is far more important than many seem to think that the roots should be close to the surface.—E. MOLYNEUX.

DAFFODILS AND NARCISSI.

At the last sessional meeting of the Devon and Exeter Gardeners Association a large number of gardeners met at the Guildhall, Exeter. During the brief existence of the Society the members have had an opportunity of listening to most interesting and instructive lectures by several of the most practical gardeners in the district, as well as joining in the discussions. The evening's essay was by Mr. Andrew Hope, manager for Messrs. Veitch & Son, and the subject was "Daffodils and Narcissi," illustrated with typical specimens. Mr. C. T. K. Roberts, President of the Association, occupied the chair. The Chairman having called upon the essayist, Mr. Hope read his paper, which was as follows:—

Who, that loves flowers for their own sake, does not keep a warm corner in his heart for the Daffodil of the English meadows? And where is the flower, excepting the Rose, that has been such a favourite theme in poetry and prose as the Daffodil? That

"Perfumed amber cup, which when March comes,
Gems the dry woods and windy wolds,
And speaks the resurrection."

From Ovid to Tennyson, the sweet singers of the world have stooped in their loftiest flights to caress and fondle with a loving phrase the flower which Keats truly called "a thing of beauty and a joy for ever."

"How sweet they show to weary eyes
These hardy, yellow blooms that rise
On slender, fluted stalks!
They need no culture, thought, or care,
But spring with Spring time free and fair
O'er all our common walks.
On meadow green, by leafy hedge,
In woodland shade, and rushy sedge,
By little lowly rills;
While yet the north wind blows his blast,
Before the storm and sleet are past,
Laugh out the Daffodils."

Then there are Herrick's beautiful lines lamenting the hastening away of this goddess of the spring. Wordsworth has in imperishable verse sung the praises of the Daffodil; Shakespeare and the minor poets again and again refer to it; and the present Poet Laureate has often told its beauty. It may, indeed, with much truth be said that the Daffodil has become indelibly fixed in the affections of the English people, grafted on English sentiment, and deeply embedded in the imperishable literature of this country. Wherein, then, lies the great charm of this flower? Not because of aggressive gaudiness of hue, for it can never be charged with that. Not because of rarity or proud reserve, for it unfolds its bewitching beauty to the peasant as freely as to the peer. Nor does it steal the heart away by the subtilty of perfume which many of its coquettish sisters of the floral world employ to draw admirers. The charm of the Daffodil lies in its quiet, latent beauty, which grows upon those who love it, its dignity of form, its graceful maidenly demeanour, and its ever-smiling face under its crown of gold. In a country walk in spring what more beautiful sight is there than that of a fresh English meadow, revealing

* * * * *
"A host of golden Daffodils
Fluttering and dancing in the breeze."

What applies to the Daffodils of the meadows applies with equal force to their more refined sisters of the gardens. All Daffodils are lovely.

DERIVATION OF NAME AND COUNTRY OF ORIGIN.

Daffodil is the popular and Narcissus is the proper name. All Daffodils are Narcissi, or *Pseudo-Narcissi*, but there are many kinds of Narcissi that are not Daffodils in any sense whatever, the Poet's or Pheasant-eyed Narcissi, for instance. The name "Daffodil" is altogether English in its association and in its application, and it is very probably a corruption of the word Asphodel (from *asphodelus*). Spenser, an early English poet, writes of

"Thy sommer prowde with Diffadillies dight,"

And in another passage he calls them "Daffodowndillies." Shakespeare speaks of the

"Daffodils
That come before the swallow darses,
And take the winds of March with beauty:"

while Tennyson calls it the "April Daffodilly." There is little doubt but that the word originally came from Asphodel, the transition being both easy and natural. There is an old English word "affodil" or "affodyle," which means "an early flower," which would exactly apply to this flower. The name "Lent Lily" is still more obvious, the plant flowering about the time of Lent. It is in some parts of Devonshire called "Bell Rose," a by no means far-fetched name if you take the trumpet to represent the bell and the pistil and stamens to represent the clapper. They are called "Gracie Daisies" in some parts.

The name Narcissus carries us into the higher walks of literature. According to classical mythology, Narcissus was a beautiful youth, who one day saw his image reflected in the waters of a fountain, and

thinking it was the nymph or goddess of the place, fell in love with it. But then, as now, the course of true love did not run smooth, so, after vainly attempting to embrace the object of his love, he, in a fit of despair, took his life. His blood was changed into a flower. The nymphs raised a funeral pile to burn his body, according to the ideas of cremation then prevailing, and from the ashes arose the beautiful flower now known to us as the Poet's Narcissus, because of the Greek poets having so faithfully preserved this authorised version of the tragedy. Another story, equally well vouched for, is that Narcissus awakened a responsive chord in the heart of the nymph Echo, but he unfeelingly permitted her to feel the pangs of unrequited love. Nemesis, in order to punish him for this, changed him into this flower. The Narcissus was held to be a flower of the gods, and was used to make coronets for the Grecian goddesses. An ancient writer says:—"Ever day by day, the Narcissus, with its beauteous clusters, the ancient coronet of the mighty goddesses, bursts into bloom by heaven's dew." A less loveable association is given in the legend that the flower was consecrated to the Furies, and was used by them to stupefy their victims by causing them to inhale the odour of masses of these flowers until they fainted. In an old manuscript in Lincoln Cathedral Library occurs the following: "Flour of Daffodil is a cure for madness." This, taken in conjunction with the idea that the odour of Narcissi caused stupor, is perhaps an illustration of the old belief that "like cured like." Then, again, it has been contended that the Narcissus is identical with the biblical Rose of Sharon, from the fact that the Narcissus grows plentifully in the Valley of Sharon, and that the Hebrew word is equivalent to the current Arabic name for the Narcissus.

Daffodils and Narcissi in their wild state are mainly European, although one of the Trumpet varieties—the old-fashioned Hoop Petticoat Daffodil is found wild in North Africa, and the Narcissus Tazetta, or Bunch-flowered Narcissus, grows wild in the Canary Islands, Cashmere, China, and Japan. Narcissus Pseudo-Narcissus, our common Lent Lily, is said to be the only truly wild variety found in this country. Of course, now and again one comes across other varieties growing wild; but they are, when careful inquiry is made, found to be escapes from cultivation or cultivated roots that have become naturalised. Some time ago it was stated that the giant Sir Watkin, though discovered in a Welsh garden, was of Devonian origin, and had been carried from Bideford by a mining captain named Byers, who settled in Wales and took the bulbs with him. I fear the evidence is insufficient. When the assertion was made it was challenged, and with a view of helping to unravel the tangled skein I wrote to the Devonshire newspapers asking if anyone could find out anything about it. Although that was two years ago I have had no reply or communication upon the subject. I asked an enthusiastic gardening amateur in the Bideford district to inquire about it, but his research is also fruitless. Queen Anne's Daffodil (Narcissus Capax) was supposed to be of Devonian birth also, but that cannot be proved. Although I do not think it the least likely that any other species will be found wild in Devonshire than the one to which I refer, it is by no means improbable that a diligent search might reveal some varieties not hitherto considered indigenous. The Tenby Daffodil (Narcissus obvallaris) is a naturalised variety. The most widely spread of the family is the Bunch-flowered or Polyanthus Narcissus (N. Tazetta) so called from the Italian word *tazetta*, meaning a little cup, and referring to the shape of its flowers. Early writers referred to it as the Narcissus of Constantinople. It is, however, found in many parts of the world, especially in the East. No new kinds of Polyanthus Narcissi have been introduced lately, unless the so-called Sacred Lily of China be considered one. On the other hand, many new trumpet varieties have been added from Spain and the valleys of the Pyrenees. Only this spring a new bicolor variety of Narcissus Johnstoni has been found near Oporto, and it is said to be very distinct.

(To be continued.)

SNOWDROPS.

I HAVE observed the remarks of Mr. S. Arnott on the varieties of Galanthus. These are humble but charming and universally loved flowers. I quite agree with him that, by paying attention to cross-fertilising, in addition to the immediate pleasure to be derived, improved varieties would be produced, the season of flowering would be prolonged, a greater interest would be taken in them, and more grace given to our spring flowers.

I have many seedlings, and although the majority cannot be called improvements, still many of them show a departure from the original type. I fear the very early one is gone, but another season may surprise me. The first Snowdrop opened its petals on the 10th of February, and I have still many in the bloom of youth. I have forwarded the most remarkable one to Mr. Arnott. It is dwarf and a late bloomer. That gentleman will probably describe it.

I never was pleased with Galanthus plicatus, which I have grown since 1862. Its petals were too narrow, and the flowers altogether disappointing; but both the crossed and haphazard seedlings are greatly improved, being more globular in shape, with deeper green markings.

Although, individually, the flowers of any variety or genus are not improved, if we can produce earlier and later varieties to prolong the flowering season a good point will have been made, and exerting ourselves to accomplish something in that direction will be means to a good end.—W. THOMSON.



CYPRIPEDIUM CHAMBERLAINIANUM.

CYPRIPEDIUM CHAMBERLAINIANUM may fairly be termed the chief Orchid novelty of the present year. The amount of interest that has been centred in it from first to last is altogether exceptional. The announcement of its introduction by the enterprising St. Albans specialists was made at an opportune moment, the excitement connected with *Cattleya labiata* having calmed down, and nothing existing to divide attention with it. Moreover, the astute step of Messrs. Sander & Co. in associating it with the name of a prominent politician and amateur Orchid grower served to attract comments from the general press, which drew widespread attention to it. It is safe to say that the naming of the flower was of far greater interest to them than its distinctness and general merit. The latter, however, are the points which Orchid cultivators have in view. The earlier estimates of the new Orchid were based on dried flowers, but a sufficiently accurate idea was formed as to leave little room for doubt that it was a sterling novelty, and the



FIG. 49.—CYPRIPEDIUM CHAMBERLAINIANUM.

exhibition of a living plant in bloom at the meeting of the Royal Horticultural Society on April 12th, the first ever shown, effectually set at rest any misgivings that may have existed.

The new *Cypridium* was introduced from New Guinea, a country not half opened up, and which may yield us many treasures. It is said to be a very free bloomer, and is evidently vigorous in habit, the leaves being of considerable size. Moreover, the flower is strikingly distinct and beautiful. The size could not be fairly judged from so small a plant as that exhibited, but the blooms are stated to be 4 inches across and as much in depth. As will be seen by referring to the engraving (fig. 49) the flower stem is dark, being of a purplish hue. The lip is very richly coloured. At the first

glance it appears to be of a deep rosy purple, but a closer inspection shows that it has a greyish ground densely clothed with dots of the colour indicated. The staminode adds to the dusky appearance of the bloom. It is very prominent, being of a purplish black hue. The petals are curled and twisted. They are pale green, thickly studded with small purplish black blotches and pubescent, contributing materially to the attractions of the flower. The dorsal sepal is also a conspicuous feature. It is rounded, light green in the centre, but paler towards the edges, and the base deeply marked with purple, which, as the engraving shows, also extends in streak-like lines up the sepal.

In *Cypridium Chamberlainianum* Messrs. Sander & Co. have unquestionably provided Orchid lovers with a novelty of great beauty, and one worthy of enriching any collection in the country.

CYPRIPEDIUM LAWREBEL.

April 12th may be said to have been a day of *Cypridiums* at the Drill Hall, for in addition to *C. Chamberlainianum* a collection of special interest was exhibited by Sir Trevor Lawrence, Bart., M.P. To several familiar forms, magnificent examples though some of them were, detailed reference need not be made here, as they were dealt with in last week's report; but a special note must be made of the beautiful hybrid *Lawrebel*, which fig. 50 (p. 295) represents. This charming form is a cross between *C. Lawrenceanum* and *C. bellatulum*, and is unquestionably one of the most richly coloured of its family. The lip or pouch is deep purplish red, the petals being of the same colour and spotted with black, with marginal hairs. The dorsal sepal is very broad, rosy red in colour with darker lines, and clearly margined with white, the base greenish. The leaves add greatly to the attractiveness of the plant, which is very dwarf. They are beautifully marbled with light and dark green.

The first-class certificate that was awarded was well deserved, and *C. Lawrebel* must be classed as a great acquisition.

CELOSIAS.

A FEW of these are very attractive among other summer and autumn flowering plants for the greenhouse, and there is no better time than the present for sowing the seeds. A good mixed strain contains many shades, such as yellow, orange, and pink to purple. Some strains produce plants of a more branching habit than others. The former are more suitable for cultivating if specimen plants are wanted; while the latter, which have the plumose appendages more developed, are very charming when grown in small pots. I have not found the plants at all fickle as to soil, but if any kind appears to suit them better than another it is such as the *Fuchsia* delights in. Indeed, the summer cultivation of the *Fuchsia*—when intelligently pursued—corresponds closely with what the culture of the *Celosia* ought to be.

For the sake of those who have not attempted to grow *Celosias* up to this time, I will briefly indicate some of the salient points to be observed in order to cultivate them fairly well. In sowing the seeds merely cover them with a little very finely sifted compost. The soil underneath the seeds ought also to be somewhat fine, and made open with sand. I keep the pots in a warm house, and shaded from the sun until the seedlings are well up. After this they must not be allowed to stand any length of time before transplanting, as they do not make such good progress if left long in the seed pot, and the plants are also kept more dwarf. The same kind of fine soil should be used for the young plants as for the seed pots. Small 3-inch pots are very suitable for growing the seedlings, as many as five or six being put out round the inside edge of each pot.

In due time these will become too confined, and the little plants must then be singled out, and each placed in a 3 or 4-inch pot; but do not select the plants without inspecting the stems, and choose those which have clearly defined colourings, thus at an early stage getting rid of those which, when in flower, would be of no decorative value. The compost to use at this and at subsequent repottings should be of a rough, open nature, and it will be better to overdo the quantity of sand than to have the compost too close. Rapid, vigorous growth is what is wanted, and a too firm close compost will not allow of this. From the 3-inch pots the plants may be shifted into 5, 6, or 7-inch. The two former sizes are suitable for plants wanted for ordinary purposes, and the 7-inch pots are large enough to produce fairly good specimen plants. They may, of course, be shifted to larger sized pots, but unless extra large plants are wanted this will not be necessary.

At this shift the pots must be thoroughly drained, and if the

roots are well through among the drainage of smaller pots, as they ought to be, it is not advisable to disturb them, but to repot them with drainage and roots intact. Set the ball well down, and do not hesitate to fill up the compost on the stem of the plants, as this proceeding, instead of being injurious, is of distinct advantage, as it keeps the plants dwarf in habit, and roots are freely produced from the buried portions of the stem. A shift from a 3 to a 7-inch pot may be thought by some as rather overdoing it; but there is no danger in the practice, and if carried out with judgment the growth will be much more rapid and stronger than if a shift between were effected.

The *Celosia* takes stimulants freely. I feed them onwards from a very small state, though in the earlier stages of growth the plants luxuriate in a warm temperature, and, indeed, must have it, potting and watering so as to keep them growing without check. Still, no plants are more suitable for a cool greenhouse throughout the summer and autumn months than these. I have had them flowering with *Chrysanthemums* well into November, and the stems when cut have kept fresh and in good order until Christmas. The plants are also excellent for standing in rooms, and do not turn unsightly so quickly as the great majority of flowering plants do when placed in dark and warm rooms.

The flowers are quite insignificant, and in looking for seeds of any particular variety which it may be considered desirable to perpetuate, they must be searched for, not among the feathery plumes, but on the stems close to where these spring.—B.

HARDY FLOWER NOTES.

SAXIFRAGAS.

THE Saxifrages which, when I last wrote, were represented by only a few species, are coming rapidly forward. The varieties of *S. oppositifolia* are very beautiful just now, although some of my plants are not so fine as usual, owing, I believe, to the excessive drought in the early part of last year. I think there can be no difference of opinion among growers as to the necessity of full sun and an ample supply of moisture for the proper cultivation of this species. The common *S. oppositifolia* is so well known that it is needless to speak at length of its deep green, dense carpet of foliage and its bright purple flowers; but the white variety, *S. oppositifolia alba*, is not so well known, and one may be pardoned for calling some attention to its merits as a rock plant or even for the front row of the border, or hanging over a stone edging where the requisite sun and moisture are at command. Its pretty clear white flowers of the same size as the typical variety are very useful in the rockery at this season, filling as they do the gap between the earlier white species of the *Burseriana* class and the beautiful encrusted and mossy species which will soon cover themselves with bloom. Then far finer than the type is that magnificent variety which I have as *S. o. splendens*, and which I take to be identical with *S. o. major*. It has covered itself with its beautiful blossoms, more brilliant and larger far than those of *oppositifolia*. As one sees *S. luteo-purpurea* more frequently its beautiful primrose coloured flowers, although somewhat small in size, grow in our favour. It is a hybrid between *S. aretioides* and *S. media*, and this, with *S. Boydi* and a considerable number of other Saxifrages, show what may be looked for as our hardy flowers become more and more appreciated, and the attention they deserve leads to cross-fertilisation and seedling raising by specialists. It in no way affects the prospect of this that *S. luteo-purpurea* is a natural hybrid.

VARIOUS.

On the upper terrace of one of my rockeries, protected by a wall from the north winds, a plant of the pleasing little *Iberis stylosa*, which has been flowering more or less all the winter, is now covered with its attractive flesh-coloured flowers. This little Candytuft seems to have established itself in my garden, but it is far from being an accommodating plant. It is perennial in some gardens only, and mine seems to be one of these. It seeds freely, and seedlings come up around the old plants very freely. The Daffodils are now coming rapidly forward. *Narcissus Ajax pallidus-præcox* opened on March 19th, along with *N. Ajax minor*, and *N. A. scoticus* followed on 22nd March, while the little *minimus* is still in full bloom. The *Hepaticas* are fully in flower, but what I have to say about these must be left until the next time I write. *Scillas sibirica* and *bifolia* are in bloom. *Iris*

Bakeriana, which I thought had split into too (not *two* as printed lately) small bulbs to flower, has flowered after all, and is very beautiful. The exquisite dark blue variety of *I. reticulata* is also fully open. The *Arabis* and the *Aubrietias* are beginning to be spangled with flowers, and a host of bulbs and plants are hastening on to delight us with their simple, or, in some cases, gorgeous beauty.—S. ARNOTT.

FROST AND INSECT PESTS.

THE severe frosts of the past few nights have been rough on the various newly hatched insect pests on fruit trees. Looking carefully



FIG. 50.—CYPRIPEDIUM LAWREBEL.

over my fruit collection with a pocket lens I find most of the caterpillars of the winter moth which were exposed on the outside of late Apple blossom buds killed and withered up. Those on earlier kinds have eaten their way into the middle of the blossoms and are secure and happy in their feeding grounds. The time of hatching out and the early applications of Paris green and London purple are most important points to observe. I shall have very little to contend with in the caterpillar line so far as I can judge. *Psylla Mali* newly hatched are killed by frost, but thousands have escaped and are quietly feeding out of harm's way between the clusters of Apple buds, and there are still many eggs unhatched.

Red spiders were very numerous on Gooseberry bushes, but the snow and frost have settled most of these insects. Plum aphids stand almost any amount of frost uninjured, even in the most exposed situations. Apple aphides are many of them killed on the exposed unopened buds, but on forward sorts they have been secure beneath the foliage and blossom buds. The Currant *Phytopti* appear to be independent of any weather, so secure in the inside of the unopened buds.—J. HIAM, *Astwood Bank, Worcestershire*.

PROBABLY the severe frosts that we have recently experienced will hit Plum growers especially hard. On examining the trees here I found all the expanded flowers spoiled, the embryo fruit being all brown or black; also some of the unopened blooms are spoiled as well, still the later unopened buds may afford a fair crop provided we have a change of weather. Pears do not appear injured at present, but I fear the check they have received may cause them to drop instead of swelling. Gooseberries and Currants seem to have escaped all injury. On the 14th we registered 6° of frost; 15th, 11°; 16th, 5°; 17th, 3½°; 18th, 6°. I note the Apple blossom weevil is putting in an appearance. We have comparatively few caterpillars of the winter moth this year, and the majority of those have been destroyed by applying 1 oz. of Paris green to 20 gallons of water in the form of a fine spray to the trees. The frost and cold weather do not seem to affect caterpillars in the slightest.—S. T. WRIGHT, *Glewston Court Gardens, Ross*.



EVENTS OF THE WEEK.—A meeting of the Linnæan Society takes place to day (April 21st), and one of the Royal Botanic Society on April 23rd. On Wednesday, April 27th, the second Spring Show of the Royal Botanic Society will be held at Regents Park. Messrs. Protheroe and Morris will sell several new Orchids by auction on April 22nd, by order of Mr. F. Sander. On the 26th there will be a sale of *Odontoglossum crispum*, and on the 27th of Palms and other plants.

THE WEATHER IN LONDON.—Frequent snow showers and sharp frosts nearly every morning have been experienced during the past week. A heavy snowstorm set in on Friday night or early on Saturday morning, and considerable damage was done in Kent, telegraphic communication between the metropolis and the southern and eastern coast towns being seriously interfered with. There were deep snow-drifts in some of the London suburbs. The weather was calmer on Sunday and Monday, rain falling on the evening of Bank Holiday. This (Wednesday) morning the weather is milder, there being no frost, and showery. The wind is in the south-west.

HORTICULTURAL CLUB.—The usual monthly meeting and conversazione took place on Tuesday evening last week at their rooms, Hotel Windsor. There was a large attendance of members and visitors. Amongst those present were Mr. John Lee (who occupied the chair), Dr. Masters, Messrs. Wallis, Selfe Leonard, H. Pearson, C. E. Pearson, A. J. Pearson, Martin, Marshall, Soper, Chcal, H. E. Milner, H. Turner, Rivers, Crowley, Druery, Cockett, Cousens, H. Williams, Cutbush, Phippen, and James Laing. The discussion was opened by Mr. H. E. Milner, who gave an address on landscape gardening, and elicited warm approval. The point, however, on which most of the discussion afterwards turned was on the opinion expressed by Mr. Milner, that the view generally held that a house situated on clay must be necessarily unhealthy must be taken with some limitation, as well as that in which he contended that the principle of landscape gardening might be carried out even in small villa gardens. A vote of thanks was cordially awarded to the lecturer, and also to Mrs. Harry Turner for a beautiful basket of *Niphetos Rose* which she sent to ornament the table.

ALLOTMENTS IN SOUTH LINCOLNSHIRE.—A large number of allotments are being laid out in the neighbourhood of Grantham, on land belonging to the Earl of Harrowby. The lots, of a convenient size, and being let at a reasonable rate, are eagerly sought after by the working men of the district. The land, too, is of a strong loamy character, and admirably adapted for fruit culture. Upwards of eighty of the new plots have already been taken. There are, in addition to these, hundreds of allotments in the locality, the bulk of them being on the Earl of Dysart's land.

A NEW PLANT.—"A Lover of Hardy Plants" writes—"As a visitor to the recent spring Show at the Crystal Palace I was much interested in a charming little plant exhibited by Captain Torrens of Hayes Common, Kent. It was labelled *Schizocodon soldanellioides*, and is said to have been discovered by Captain Torrens in Japan. The foliage and flowers somewhat resembled *Shortia galacifolia*, and, like the latter, it will doubtless prove a valuable addition to choice hardy plants. This *Schizocodon* has, I believe, been known for many years, but hitherto it has not been seen alive in this country. The plant shown was in a 4-inch pot."

TOMATOES FROM AMERICA.—Rich as our supply of Tomatoes already is, it is expected that it will be very largely increased by consignments from America. It has been found on Atlantic steamers that the Tomatoes shipped for the use of the passengers have been perfectly fresh and in good condition on arrival in England, and this without extra care or precaution in packing. It is, therefore, believed that Tomatoes can be placed on the London market in first class condition. Light wicker baskets will be used for packing them. The demand for Tomatoes has been steadily increasing in England during the last few years, and physicians are unanimous in declaring them to be of great dietetic value. Over a thousand tons were received last year from the Channel Islands alone, in addition to contributions from France, Spain, the Azores, and Canary Islands.—(*Daily News*.)

GARDENING APPOINTMENT.—Mr. Frank Orchard, late gardener to J. C. Frazer, Esq., Thorpe End, Chertsey, Surrey, has been appointed gardener to Henry Michell, Esq., Undermount, Bonchurch, Isle of Wight.

FLOWERS FROM THE SCILLY ISLANDS.—A Devonshire paper says that during the two weeks ending April 9th upwards of 73 tons of flowers have arrived at Penzance from the Scilly Islands on their way to the London and Birmingham markets.

A CALIFORNIA "BIG TREE" has been selected in Tulare county to be shown at the Exposition. A Committee of the Board of Trade, after an extended tour of inspection, picked out a tree measuring 87 feet 9 inches in circumference at the base, 85 feet at 5 feet above the ground, and 65 feet at a height of 16 feet.

THE DISEASES OF FOREST TREES.—A little work entitled "The Manifestation of Disease in Forest Trees," by C. E. Curtis, F.S.I., F.S.S., comes to hand from Horace Cox, the *Field* Office, Breems Buildings, London, E.C. So important a subject cannot be done justice to in the space devoted to it, though some useful hints are given in its pages.

HIGH PRICES FOR TASMANIAN APPLES.—During the past week upwards of 8000 boxes of Tasmanian Apples have been landed from P. and O. steamers in the Royal Albert Dock, and another cargo is expected by a later steamship. The market price realised for the highest qualities has reached 1s. per lb., and the lower qualities have fetched 4d. per lb. and upwards.

FROST AND FRUIT BLOSSOM.—I fear the fruit prospects in this locality have been seriously affected during the last two nights, as we registered 10° of frost on the night of the 13th, and 12° on the following night. Peaches and Plums are in full and abundant bloom. Apricots will most likely escape, as the fruit has been set some days. —H. D., *Warwick*.

NOTTS HORTICULTURAL AND BOTANICAL SOCIETY.—The annual general meeting of this Society was held on April 5th, Mr. Edward Barber presiding. Unfavourable weather militated against the financial success of last year's shows, but there is a small balance in the Treasurer's hands. The report was adopted. Mr. Charles Hilton Seely was elected President, and Mr. J. M. Stewart was re-elected Hon. Secretary.

KENTISH FRUIT PICKERS.—For the benefit of those who have determined upon visiting the fruit plantations of Kent during the forthcoming picking season for the purpose of earning a few pounds, says a daily contemporary, it may be stated that by-laws are about to be enforced in the north-western division of the county by the Dartford Rural Sanitary Authority, enforcing the provision by the growers of appropriate accommodation.

GOVERNMENT GRANT FOR THE CHICAGO EXHIBITION.—We are asked to give publicity to the fact that Her Majesty's Government, having increased to £60,000 the grant of £25,000 originally made for the purposes of the British section at the Chicago Exhibition, the Royal Commission for that Exhibition are enabled to dispense with the revenue it was proposed to raise by charging the exhibitors in proportion to the extent of space occupied, and that, therefore, all space in the British section will now be granted free of charge.

ROTATION OF CROPS.—At the last monthly meeting of Lindfield Horticultural Mutual Improvement Society Mr. H. Townshend read a practical paper on the rotation of vegetable crops. He contended that as different classes or tribes of vegetables took different constituent properties out of the soil, care should be taken to avoid growing two consecutive crops of the same vegetable on the same piece of ground. He enumerated several vegetables which well followed each other, but it was difficult to suggest a hard and fast rule, so many things having to be considered, especially in cottage gardens. Speaking of Strawberries, when they had been growing two or three years a similar interval should elapse before they were grown again on the same piece of ground, which interval allowed the ground to recoup itself. A discussion followed, one point of which turned on the question of double cropping. It was pointed out that where this system was pursued, a point often lost sight of was the thorough manuring of the whole of the ground. For instance, a piece of ground would be manured for Potatoes, but the spaces between the rows, which later on would be planted with Savoys, Brussels Sprouts, &c., would be left unmanured, and consequently the crop would be a failure. [Not necessarily.]

— THE WEATHER IN SCOTLAND.—During the week ending 18th inst. the weather in Scotland has been of winter severity. Snow has fallen on several days, in some places to the depth of 6 inches. In South Perthshire, although the ground has been frequently whitened, not more than an inch has lain at any time. The frost has been severe every night; 14° were registered on the morning of the 15th, 9°, 12°, 8° on the three following, with no appearance of change.—B. D.

— WE are desired to state that Mr. John Barry, for many years connected with the Royal Horticultural Society, has been appointed traveller (in the South of England) to the firm of Messrs. W. Clibran and Sons, Oldfield Nurseries, Altrincham, and Manchester.

— BRITISH FRUIT GROWERS' ASSOCIATION.—We are informed that a conference will be held by this Association at Newcastle on April 25th, when papers will be contributed by Mr. George Gordon, Mr. A. H. Pearson, Mr. W. Goaring, Mr. Joseph Cheal, and Mr. L. Castle.

— FRAGRANCE IN CYCLAMENS.—Were it possible to "fix" the delicious fragrance which now and then may be found in Cyclamen blooms, these useful plants would be doubly valuable. A few days ago, whilst visiting a well-known nursery, I was shown a small batch of Cyclamens of various colours, and every bloom emitted a most pronounced fragrance similar to Violets. An attempt is being made to infuse the perfume into the progeny, and it will be interesting to watch the results.—T. C.

— "THE KEW BULLETIN."—The April issue of this work has just come to hand. It contains, among other subjects, correspondence relative to Fiji Ginger, a full and interesting account of the Botanical Station, St. Vincent, also of the agricultural resources of Zanzibar, with various miscellaneous notes. The plant of the Double Cocoa-nut is said to be thriving, and may be seen with the following rare Palms in the Victoria house:—*Mauritia flexuosa*, *Manicaria saccifera*, *Hyphoene thebaica*, *Borassus flabelliformis*, *Bismarckia nobilis*, *Pholidocarpus Thur*, *Licuala grandis*, and *Socratea exorrhiza*.

— THE WEATHER IN DURHAM.—The weather has been for the past week unusually severe. On Friday and Saturday, the 15th and 16th, we registered 14° of frost each morning, a bitter cold north-easter prevailing the whole of the week, snow lying while I write.—W. A. JENKINS.

— THE WEATHER AT LIVERPOOL.—Slight falls of snow, bitter N.E. winds, and frosty nights have recently prevailed, reminding us of the middle of winter. In many places Plums and Cherries are in full bloom, and such weather must do a certain amount of damage to unprotected trees. The night temperatures have been, 12th, 25°; 13th, 26°; 14th, 18°; 15th, 19°; 16th, 16°; 17th, 18°.

— WEATHER IN THE MIDLANDS.—During the past week the weather has been exceptionally severe for the time of year in the midland counties. Snow fell heavily in some parts of South Lincolnshire on Sunday night, but the greater portion of it quickly disappeared. Between St. Neots in Huntingdonshire and Sandy in Bedfordshire the fields were covered with snow on Tuesday morning, presenting a very wintry aspect. Market gardening operations in the districts referred to have been seriously interfered with.

— THE WEATHER IN MID-SUSSEX on Saturday morning the 16th inst. would have been much more in harmony with Christmas than Easter. About 4 inches of snow had fallen, and was driven by a strong N.W. wind with great fury. Every twig was coated with snow, and evergreens were weighed down to the ground. It has been followed by sharp frosts. Gooseberries are in full bloom but well in leaf, and do not seem to have suffered. Pear bloom out on E. aspect wall under fish nets are destroyed, and I fear the Plums will share the same fate.—R. I. [Near Hawkhurst the snow was a foot deep.]

— FROST AND SNOW IN THE ISLE OF WIGHT.—The weather here lately has been very wintry. The tops of the hills behind Ventnor are covered with snow—a very unusual thing for this part of the country at this time of the year. We have sharp frosts every night. On Friday night, the 15th, there were 6°, which blackened all the early Potatoes, and must do severe injury to the blossom of the early fruit trees. The tops of the Asparagus are killed, and altogether it will make a very backward spring still later. Summer visitors are here, but having a very cold reception. The cuckoo and the nightingale were heard last week, and yesterday (the 17th) I saw the first swallow, so we ought soon to have better weather.—C. ORCHARD.

— NORTHERN WEATHER.—We have had a week of very wintry weather, with frost every night except the 12th (38·6°) varying from 4° to 14° of frost, the mean maxima, 52·5°; minima, 25·8°. Coldest night, the 15th, 18·3°; coldest day, the 12th, 43·4°; warmest day, the 10th, 62·8°. Several mornings the ground was white with snow, with frequent showers throughout the day. Vegetation is in a backward state. Peas sown the 1st of March are just showing; those sown three weeks ago are scarcely moving, the surface being too dry with frost and bright sunshine. Small seeds are making no progress.—G. M. D., *Stirling*.

— THE WEATHER IN HAMPSHIRE.—This has undergone a complete change during the last eight days as it has in other localities. The first eleven days in the month produced a temperature of 70° in the shade, and over; on the 10th 76° were registered, the nights being really warm for the time of year, on the night of the 6th the lowest reading being 48°, and vegetation moved rapidly. During the night of the 12th the temperature fell to freezing point, and since then we have had nightly frosts of great severity. This morning at 6.30, 18th, we had 10° of frost. I fear the early promise of a full fruit crop will not be realised, as I note the unopened buds of pyramid Pear trees are blackened. The early blossom of Plums and Cherries on walls are in an equal plight. Rain is needed for newly sown seeds and plants just put out, scarcely any having fallen for a month.—E. M.

— WINTERLY WEATHER IN SOUTH WALES.—The weather for the last two or three days has been alternating between bitter east winds and cold snow storms. On Thursday morning there was a slight frost, but not sufficient to injure the blossom of fruit trees and early Potatoes above ground. On Good Friday morning the hills in the district were covered with snow, and the thermometer registered 8° of frost. The hot summer-like weather of the previous week brought fruit trees rapidly into flower. Plum trees and many varieties of Pears were one mass of flower, and promised well for a good crop of fruit, but now the organs of fructification are completely destroyed, the pistils in many cases being killed while still enveloped in the petals of the corolla. Apple trees are not so far advanced, and there is still a probability, if the weather moderates, of a crop; but Pears, Plums, and Cherries, I am afraid, will be all but a failure in this district. Early Potatoes have been cut down to the ground, and the buds of the Vines in the vineyard at Castle Coch are very much blackened. Horse Chestnuts and other forest trees are greatly injured, and the young growths of the common Brake Fern are cut down to the ground.—A. PETTIGREW, *Castle Gardens, Cardiff*.

— SEVERE WEATHER IN FRANCE—GREAT DAMAGE TO FRUIT TREES.—The Paris correspondent of the *Daily News* telegraphs:—An icy wind has been blowing over Provence for some days. The fruit trees having blossomed early, the prospect of a fine crop is at an end. The probable loss to the fruit gardeners is estimated at millions of francs. The Vines of the Loiret are as if scorched by the hard frosts which succeeded the summery weather of the beginning of the month, and the consequent splendid burst of vegetation.

— CYTISUS SCOPARIUS ANDREANUS FROM SEED.—Doubts were at first entertained whether *Cytisus scoparius Andreanus* would reproduce itself from seed or run back to the normal type. So far as I am aware the plants under notice are the first seedlings which have flowered in England. The seeds were sown as soon as gathered in August, 1890. It is quite evident that this method of increase cannot be depended upon, as the flowers are wanting in that rich dark velvety appearance which is so prominent in the centre petals of worked plants. They are certainly different from the common Broom; the standard is of a light sulphur colour, and the centre petals yellow suffused with a rich canary colour, the keel being somewhat similar to that of the standard. *Genista præcox* is another plant that cannot be depended upon to come true from seed, as it generally runs back to the White Broom. This roots freely from cuttings placed under handlights in August and shaded from the sun with tiffany.—T.

— BEGONIA BISMARCKI.—This comparatively rare and beautiful garden hybrid is, says the "Garden and Forest," one of the best winter blooming varieties we have. Its constitution is very robust, and it partakes generally of *B. rubra* in character. The leaves, however, are larger and much more divided. The panicles are large, and so, too, are the individual flowers, which often measure 2 or more inches across. The male flowers, which, as in all Begonias, open first, are comparatively small, and it is not until the female flowers display themselves that their full beauty is seen, the large seed vessel, with largely developed bright

red wings, being their most conspicuous feature. The petals are light rose, incurving slightly—a form which adds considerably to their effect. The plant is easily propagated, the cuttings bloom in the propagating bed and grow into neat plants at once. For bedding it has exceptional merit, since very few of its class bloom well during summer. As a cut flower variety it is excellent, the flowers lasting a long time.

— THE BRENTWOOD HORTICULTURAL SOCIETY seems to be establishing itself on a thoroughly sound footing. At the recent annual general meeting it transpired that the deficit with which the financial year was commenced has been wiped out, and that a small balance on the right side now exists. This is satisfactory, and it is to be hoped that the balance will grow. Mr. J. Tasker was elected President, and Mr. T. W. Haws Secretary. The former has promised £20 towards the prize list and granted the use of Middleton Hall grounds for both shows.

— LIVERPOOL HORTICULTURAL ASSOCIATION.—A well attended meeting of members of the above Association was held in the Lecture Room of the Museum, William Brown Street, Liverpool, last week, to consider the advisability of holding a summer Show this year. The Liverpool and Manchester Agricultural Society having announced holding their meeting in Newsham Park on the same dates as the previous summer horticultural shows have been held, Mr. Stoney proposed:—"That the Horticultural Show be held in Sefton Park on Wednesday and Thursday, July 20th and 21st." This was carried unanimously, and it is hoped that the Committee and all interested will use every endeavour to make the new dates known by advertising and other means calculated to make the Show a distinct success.

— WOLVERHAMPTON HORTICULTURAL SHOW AND FLORAL FETE.—The disposal of the last year's proceeds of this Society was recently dealt with. By resolution of the Wolverhampton Town Council, dated the 13th April, 1891, the Committee were empowered to make such terms and conditions with the Executive Committee of the Horticultural Show and Floral Fête, to be held on the 14th, 15th, and 16th days of July, 1891, as to the appropriation of the net proceeds arising therefrom, and as to all other necessary matters which they might deem advisable. The Committee accordingly invited the Executive Committee to meet them on the 12th February, 1892, whereupon at such meeting the following extract from the report from the General Committee of the Show was approved and adopted:—"The question of the disposal of the surplus has been well considered, and the Committee have decided to appropriate it as follows:—£500 to be added to the trust fund for the benefit of the park, making the total of this fund £900; £100 to be added to the reserve fund at the County of Stafford Bank, bringing this fund up to £600; and the balance of £50 5s. 4d. to be handed over to the Park and Baths Committee, to be expended on the immediate requirements of the park."

FREESIAS.

I CANNOT think with your correspondents that the number of blooms produced by the bulbs of this delightful plant has anything to do with the temperature in which it is grown. I have for many years cultivated it most successfully, and the temperature of my house is lower than either of those mentioned in his letter; but there is a preliminary question that seems to be somewhat obscure—viz., what does he mean by a spike? The Freesia throws up a flower stem which can hardly be called a spike; it has one principal shoot, and, besides, a number of side shoots. Now, if he means that he has this principal spike with twenty blooms, I can only say that I have never seen, either in my own cultivation or that of any other grower of it, anything like that number. I have had some with nine flowers, and I have never seen that exceeded anywhere. But if by the spike he means all the shoots, then I do not think that there is anything wonderful in it, as I have many bulbs that bear from sixteen to twenty blooms. You will, I am aware, in heat get taller plants, but I do not think a high temperature will conduce to a larger number of flowers. I have but a small house, and my sole object is to exclude frost. I do not attempt to force anything, and least of all should I attempt to force the Freesias. I do not care for tall plants, believing that the dwarfer ones are more beautiful.

The compost in which I grow them and most of my greenhouse bulbs is very much the same as that described by your correspondent. Drainage is an essential part in their culture, as indeed it is with most bulbs; but I believe the chief point in their cultivation is the thorough ripening of the bulbs. As soon as mine are out of flower I place them on the top shelf of the greenhouse close to the glass, and there they are allowed to remain until the soil is perfectly dry and the foliage completely withered. I do not take them out of the pots until they are required for potting, but lay the pots on their side where they will get no water. As I have no heat I generally commence to pot in August, and then at intervals of a fortnight or three weeks. There is one advantage in having more heat than I possess, that it is possible to get a larger

number of blooms out at one time. I am told that a gardener in the neighbourhood had a pot with twelve bulbs in it, and that they had 200 flowers open at one time. There are two other advantages that this bulb possesses, it increases rapidly and seeds very freely. The seed vessels are very curious and the seed soon germinates. Altogether it is without doubt the greatest acquisition for the general public that we have had from S. Africa, that paradise of bulbs, for many years.—D., Deal.

FORCING DWARF BEANS.

I OBSERVE notes on page 265 on Forcing Dwarf Beans by Mr. W. Hunt, Shrover Hall. I cannot agree with him in advising so much trouble in growing this delicious vegetable to perfection. Perhaps my simple way will be of interest to some of your readers. I grow the Beans from November to May both in pots and boxes. I half fill the pots and boxes (the latter being 3 feet long by 2 wide and 1 foot deep) with common soil and place at least sixty Beans in each box and ten Beans in each pot. I never thin any plants out, and all the attention required is to supply water and syringe. They are grown in a temperature of 60° at night and 80° by day with sun heat. The sample plant enclosed is one out of a box containing sixty of a similar kind bearing six to eight pods each. The sort is Ne Plus Ultra. I think no one needs a simpler way of growing Dwarf Beans than this, and until I fail I shall not attempt any other.—R. SAMUELS, Trent Gardens, Cromer.

[Considering the method of culture the sample is very good indeed, but not equal in substance of leaf or fleshiness and colour of the pods to Mr. Hunt's, which were grown under different conditions.]

LUCULIA GRATISSIMA.

LUCULIA GRATISSIMA, of which fig. 51 (page 299) is representative was introduced into this country in 1823, and has secured a high place in the estimation of many cultivators, although it cannot be described as a universal favourite. It is a native of Nepal and Silhet. A coloured plate of it appeared in the "Botanical Magazine," t. 3946, and in the description accompanying it Dr. Wallich's words of commendation respecting the plant were quoted. "It is impossible," he said, "to conceive anything more beautiful than this tree when covered with numerous rounded panicles of pink-coloured, fragrant, very large blossoms." It is unquestionably an extremely effective and useful plant in autumn and winter, blooming with great freedom under good treatment at a period of the year when flowers are not too abundant.

It is a splendid plant for covering a wall, and is even better adapted for this than growing as a bush; but under the latter system its flowers appear to much greater advantage than when grown against a wall. A good plant is a most conspicuous object in a conservatory in early winter; it not only, when in flower, fills a house with fragrance, but quickly arrests the attention of visitors. A plant carrying over 300 trusses, open and to open, is a sight when once seen not easily forgotten. Small plants put out from 6-inch pots are capable of doing this in about six years, thus showing the rapidity with which it grows when once established.

The Luculia will endure close pruning, and can therefore be kept within due bounds and to suit the position in which it may be planted. When well pruned the growths are stronger, more sturdy and compact, and will carry in consequence larger trusses of flowers than if pruning is not resorted to. The treatment which suits Camellias when planted out suits this plant well. If the house in which it is grown can be closed early with a little sun heat while the plants are making fresh growth all the better. After growth is completed Luculias, like Camellias, will do with cooler treatment. While growing abundance of water should be given both to the roots and on the foliage. The temperature should not be allowed to fall too low in winter. It will do well in any structure ranging from 40° to 50°, according to external conditions. A mixture of loam and peat (the latter predominating), with plenty of coarse sand and a little charcoal to keep the soil porous, forms a suitable compost.

Thrips is the greatest enemy to this plant. Care must be taken never to allow the insects to become established, or they soon do much injury. They are generally kept in check by liberal syringings; but if further measures are needed, sponging the leaves with tobacco water is a safe method of extirpating the pest.

If desired dwarf plants can be grown successfully, and plants rooted in spring will, if liberally treated, give good heads of flower in November. The chief difficulty is in propagating the plants. If a propagating case with good bottom heat is at command, and good cuttings—which should not be too hard—can be procured the result need not be feared. The shoots produced behind last year's flower

heads are the best for the purpose. These should be taken off with a good heel and inserted singly in thumb pots of very sandy soil. Water them, and plunge them in the case. Keep the case close till the

should have a shift into 5-inch pots, employing rich compost, and when established they must be placed in a light position in a cool stove or intermediate house. The plants must be kept free from insects, and on



FIG. 51.—LUCULIA GRATISSIMA.

cuttings are rooted, and only give sufficient moisture to prevent flagging. When the cuttings are rooted they should be carefully removed from the propagating case, taking care that they do not flag after removal. When the thumb pots are filled with roots the plants

no account be allowed to flag, as they soon lose their leaves if at any time the soil becomes dry. Treated in this way few of the plants will fail to produce good heads of flowers. The engraving represents one of many trusses on a plant grown by Mr. W. Bardney.



CHRYSANTHEMUM ANALYSIS.

IN my opinion a more correct method of compiling an audit of the number of times varieties are exhibited in one season would be to take the exhibitions of the leading societies throughout the entire country held at different dates rather than confine the analysis to the Show of the N.C.S. If the varieties staged only in the winning stands were tabulated such a list would prove of more value to those persons who are wishful to enter the ranks of exhibitors, and it is these we are the most desirous to assist. To exhibitors of long standing such lists are also interesting. When an audit is confined to the exhibition of one society only, although that may be the leading one, it is hardly a true test of varieties as exhibition flowers; those that last over a longer space in good condition are of more value than those which are enumerated from one date only. It must not be understood that I infer from this that the arena of the N.C.S.'s Exhibitions receives no fresh combatants yearly, because I know it does; but in a broad sense the principal exhibitors are the same year after year, like all other leading societies who have their followers.

Referring to the remarks of "A. D.," page 282, on the merits of Etoile de Lyon as compared with those of Vivand Morel, it is generally conceded that the latter is by far the more handsome. Vivand Morel is the best Japanese Chrysanthemum, new or old, and if the audit had extended over a wider area this variety would have occupied a much higher position, but of course it could not be expected to compare with Etoile de Lyon in the number of times shown, on account of the limited stock at the time in existence. The finest blooms I saw of it were three on a plant not more than 3 feet 6 inches high. Etoile de Lyon grows freely and gives blooms in abundance, hence the cause of its being staged so many times.

I suppose it will remain a matter for debate what really constitutes beauty and quality in Japanese Chrysanthemums. Not so in the incurved section; a standard is there fixed, and those which do not come up to it are at once pronounced faulty. In the Japanese section such varieties as Fair Maid of Guernsey, Carew Underwood, Comte de Germiny, Elaine, Thunberg, and many others, must give way to newer and certainly improved forms, such as Avalanche, Sunflower, A. H. Neve, W. W. Coles, Mrs. Falconer Jameson, and W. H. Lincoln, for instance. These possess depth of floret, which constitutes fulness of flower without stiffness; for example, compare Avalanche with Elaine, W. W. Coles with Carew Underwood, Mrs. C. Wheeler with Comte de Germiny, and Sunflower with Thunberg, all varieties somewhat similar in colour. Florence Davis, Gloire du Rocher, and Puritan will be found much higher if a list is compiled at the end of 1892 than they now are.

With a slight reference to the incurved section I will bring to a close this brief notice of the analysis of 1891. It is not possible for members of the Queen family to be other than at the top of the list when they are well cultivated, possessing as they do all the characteristics of perfect specimens in this section. Lord Alcester is, in my opinion, the finest variety in existence, and who can fail to admire globular examples of the pure white Empress of India or the delicate rose blush of the Queen of England? but, unfortunately, this variety is less often seen in its proper character than any other. The main reason for this is the great "craze" nowadays for size. In striving for this growers select the buds of the Queen too early, and in consequence have to depend upon blooms very "washy" in colour as compared with those obtainable from later formed buds. These, although perhaps not so large, are superior because they represent the variety in its true character, and this ought to weigh heavily with judges. I am pleased to see that Mr. Mawley has placed all the supposed varieties of Golden Queen of England under that name, dispensing with those which are but synonyms. I allude to Emily Dale, John Lambert, and others, for many names are bewildering, and serve no good purpose.—E. M., *Swanmore*.

CARNATION SOUVENIR DE LA MALMAISON.

FEW plants are more useful for cutting than the above, flowering, as they do, all the year round; and those who can give them a suitable position in the plant house will be amply rewarded for the care and attention bestowed upon them. The most suitable structure in which to grow the plants is a span-roof running north and south, and heated sufficiently to maintain a minimum of 40° without overheating the pipes. A maximum of 50°, with plenty of air, is a very suitable temperature for them during the winter months, but no hard and fast line need be drawn. In summer they must be kept as cool as possible, the aim being to secure strong sturdy growths; fine flowers are then sure to follow.

Cuttings may be inserted in July, placed in a frame facing north,

and kept air-tight until rooted, when they should be removed to a shelf in the plant house. If a frame is not available when the cuttings are inserted they may be placed in the plant house at once, but will be longer in taking root. When well rooted they must be potted singly into 3 or 4-inch pots, according to the size of plant, using a compost of equal parts loam, peat, and half-decayed leaves rubbed through a three-quarter-inch sieve, with a liberal addition of sand, taking care to have the drainage perfect. As the plants grow and the pots become full of roots they must be shifted into others 2 inches larger, until they are finally placed in 12-inch pots, in which they will make grand specimens. They must be very carefully watered at all times, never allowing them to suffer from the want of water, or they will lose the bottom leaves, the other extreme quickly causing yellow sickly spots to appear. A happy mean as regards moisture is essential to success. Great caution must be exercised in the use of stimulants. The flowers forwarded last week were grown without manure, except what they have obtained from the atmosphere, the floor and staging being occasionally sprinkled with liquid from the cow byre. Green fly must be kept down either by fumigation or dusting the points with tobacco powder.

The foregoing is an effort to convey the details of our practice, which I hope will be sufficiently clear to be of service. If I have omitted any point on which your readers would like more information I shall be glad to supply it if I can. I may add the largest flower sent was cut from a plant eight years old.—CHAS. PORTSMOUTH.

THE FRUIT GROWER'S GUIDE.

THOUGH this serial work, published by Messrs. Virtue & Co., is not sent to the Press for review, we have had so many inquiries relative to it that the time has arrived when the opinions of some admittedly practical authorities in the fruit world may not be inappropriately published in these columns.

Having looked through a specimen number of "The Fruit Grower's Guide," by Mr. Wright, the well-known practical lecturer on Fruit Culture and Assistant-Editor of the *Journal of Horticulture*, I have great pleasure in saying it is well got up, the illustrations being faithful and excellent, the paper and type good, and the price moderate. As this work, by such an able author, will include the best of all the leading hardy fruits, it will be found most useful, not only to the market grower, but also to the private gardener, the amateur, and the landlord, at last alive to the fact that fruit farms well stocked with the best varieties will pay much better than corn growing.—W. COLEMAN, *Eastnor Castle Gardens*.

The first division of "The Fruit Grower's Guide" has reached my hands. The book is far in advance of anything of its kind in existence, and it contains a fund of useful, sound, practical knowledge, which should be read profitably by intelligent amateurs as well as the gardener, and is especially recommended in this published form to the notice of young men probationers in the profession. Thorough practical knowledge, and the power of expressing it, are special features in Mr. Wright's most valuable work, and the diagrams are also plain and well conceived. Had this excellent book been brought forward earlier and followed by cultivators, British-grown Apples would never have reached their present low standard of quality, and less foreign ones would have reached our markets. The price is extremely moderate for such a well got up book.—WILLIAM CRUMP, *Madresfield Court Gardens*.

After a very careful perusal of the first portion of "The Fruit Grower's Guide," by Mr. J. Wright, I have no hesitation in stating it is really what its name indicates, and should be carefully read by all interested in fruit culture. I venture to say that if the highly practical advice were acted upon generally, British orchards would not long remain in their present disreputable condition. The work is valuable not only to the gardener and farmer, but also to the landowner, indicating as it does how much the land may be increased in value by the judicious planting of fruit trees. In fact, the work supplies a long-felt want, and I hope it will meet with the success its merits so richly deserve.—S. T. WRIGHT, *Glewston Court Gardens, Ross*.

I have looked through the introduction and general preface of "The Fruit Grower's Guide" with much satisfaction. The information furnished by the author is practical and comprehensive, embodying the newest methods of culture and management. Nothing is more simple, but at the same time more injudicious, than the indiscriminate recommendation to plant fruit trees without specifying the conditions of cultivation. Mr. Wright, the author of this valuable work, is a practical man, and clearly lays down the conditions upon which depend successful fruit cultivation.—JOSEPH MARSTON, *ex-Mayor of Evesham and Secretary of the Evesham Fruiterers' Society*.

I beg to say that I duly received the first division of "The Fruit Grower's Guide" (Wright's), and having carefully perused it I can safely say it is the most complete work of its kind I have read—it is so thoroughly practical, every page teeming with useful information, not only to the gardener and farmer, but also to the landlord, and indeed to everyone interested in the important industry of fruit growing. I hope

the book will find a ready sale, especially in this county, where, without doubt, we have some of the finest fruit-growing land in the country, the greater part of which, I am sorry to say, is not utilised as it ought to be, owing in a great measure to the want of knowledge in *practical* fruit growing by the occupiers. To these I would say, Buy Wright's "Fruit Grower's Guide," in which they will see how to plant, grow, and prune their fruit trees, and also some of the best kinds to grow, as shown in the beautiful coloured illustrations.—JAMES DAWES, *Ledbury Park Gardens*.

I am much pleased with the "Fruit Grower's Guide," by Mr. J. Wright, a most useful and practical guide to all about to plant and grow fruit. In my opinion it is the most valuable book on the subject ever published. The illustrations are very beautiful. I am sure it will meet with the success it deserves.—BAILEY WADDS, *Birdsall Gardens*.

In the preface to the first bound volume of seven monthly parts Mr. Wright recognises the co-operation of Mr. G. Abbey, and also acknowledges the various sources from which information has been derived in the production of the work. The volume contains a number of coloured plates of fruits by Miss May Rivers, in which the talents of this young lady are admirably displayed.

ROYAL HORTICULTURAL SOCIETY.

APRIL 19TH.

THE exhibits before the various Committees on this occasion were not numerous, but being supplemented by the Show of the National Auricula and Primula Society a very attractive display was produced, Messrs. Sander's Orchids being a great feature.

FRUIT COMMITTEE.—Present: P. Crowley, Esq., in the chair; Messrs. J. Willard, G. Bunyard, A. Dean, G. H. Sage, G. Wythes, J. Hudson, H. Balderson, F. Q. Lane, J. Smith, G. Norman, W. H. Divers, Harrison Weir, J. Cheal, D. Morris, and T. J. Saltmarsh.

The fruit exhibits were very limited. Mr. Frank Lees, The Vineyard, Connaught Road, Reading, sent a box of Vicomtesse Héricart de Thury Strawberry, and received a cultural commendation. Mr. Wythes, Syon House Gardens, exhibited a seedling from Keens' Seedling, and received a vote of thanks. Mr. Gilbert, Burghley Gardens, received a cultural commendation for a fine dish of La Grosse Sucrée. From the Royal Gardens, Frogmore, came a bunch each of Black Hamburgh and Foster's Seedling Grapes ripe in March, and they deservedly received a cultural commendation. Mr. Divers exhibited a dish of the Apple Barnack Beauty; and a vote of thanks was accorded to Mr. Roupell for two dishes of Apples, in which Annie Elizabeth and Striped Beefing were the most noteworthy.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), Messrs. G. Paul, Owen Thomas, B. Wynne, C. Bause, H. B. May, G. Phippen, C. J. Salter, H. Turner, G. Gordon, J. Fraser, and W. C. Leach.

Messrs. Barr & Son had a collection of Daffodils and hardy plants, comprising many well-known varieties of the former, and received a vote of thanks. Prizes were offered for these flowers. The Rev. S. E. Bourne, Dunstan Vicarage, Lincoln, was first for a collection, exhibiting good flowers; H. J. Adams, Esq., Rosencath, Enfield (gardener, Mr. C. May), being second; and J. T. Hopwood, Esq., Ketton Hall, Stamford (gardener, Mr. W. H. Divers), third. With a collection grown in the open ground, Mr. C. W. Rowan, Valleyfield, Pennycuik, Midlothian, was first; and Mr. H. J. Adams second. For nine varieties grown out of doors, W. H. Berkeley James, Esq., The Oaks, Carshalton (gardener, Mr. J. Gibson), and the Rev. E. Bourne were first and second. Mr. James and Mr. J. W. Melles showed well in other classes.

Messrs. Veitch & Sons exhibited several new plants, some of which were honoured by the Committee, and are described below. Messrs. Boelens frères, Ledeberg-lez-Gand, received a vote of thanks for a seedling *Clivia* named *Britannia*, very deep in colour. Mons. J. Sallier, Horticulteur, Paris, showed *Tropæolum Lobbianum variegatum* Spitfire. Some Hyacinths were sent from the Royal Gardens, Kew, that had been grown from bulbils in from three to five years, and included some good spikes. Votes of thanks were accorded to Mr. Divers for baskets of the fine double blue Violet Queen Victoria and the old single white Primrose. Mr. J. Chard exhibited *Cyperus laxus variegata*, and received a vote of thanks. Mr. J. Quarterman had several fine baskets of Guelder Roses and *Acacia hispida*, for which a bronze Banksian medal was awarded. They were finely flowered.

Messrs. W. Paul & Son had several baskets of new Tea Roses, including Christine de Neve, bright satiny pink; Waban, rosy pink; Spenser (H.P.), soft blush, fine full flower; Corunna and Pink Rover. A beautiful collection of Alpines came from Mr. W. Harper, Millmead Nursery, Guildford. They were arranged in baskets, and included many beautiful kinds. A silver Banksian medal was awarded.

ORCHID COMMITTEE.—Present: Messrs. J. Douglas (in the chair), J. O'Brien, H. Ballantine, C. J. Lucas, E. Hill, J. Jaques, T. B. Haywood, and Dr. Masters.

A very beautiful display came from Messrs. F. Sander & Co. and without it the Orchid interest could only have been feebly represented. Amongst the plants honoured by the Committee were *Oncidium Gravesianum*, *Odontoglossum Wendlandianum*, and *Cattleya hybrida Burberryana*, which are described below. Besides these there was a new *Odontoglossum* named *Owenianum*, introduced from Columbia and

noteworthy for its pure white lip, *Dendrobium hercoglossum*, *Cattleya labiata* (Swainson's variety) of which there were several forms richly coloured and of great beauty, *C. gigas*, *C. speciosissima*, *C. Schrödera virginalis*, *C. Schrödera*, *Phalænopsis amabilis*, bearing a beautiful spike of bloom; Phaius Cooksoni, *Spathoglottis Lobbi*, *Dendrobium Phalænopsis Schroderianum*, *Trichopilia crispa grandiflora*, and others. A silver Banksian medal was deservedly awarded.

C. E. Smith, Esq., Silvermere, Cobham (gardener, Mr. J. Quarterman), exhibited a finely flowered plant of *Dendrobium Wardianum* and a group of *Oncidium luridum*, for which a vote of thanks was accorded. R. J. Measures, Esq., Cambridge Lodge, Camberwell (gardener, Mr. Simpkins), received an award of merit for *Cypripedium Exul*, described below. Messrs. J. Veitch & Sons, Chelsea, received an award of merit for *Cattleya Philo*, described below.

CERTIFICATES AND AWARDS.

Cattleya Philo.—This is a cross between *C. iricolor* and *C. labiata Mossiæ*, the former being the male parent. It is unfortunate that this species is not much known. *C. Philo* partakes of the character of both parents, but leans more to *C. iricolor* than the other. For example, it has the short flower sheath and long leaf of the latter, and the flower also more closely resembles this than *C. labiata Mossiæ*. The sepals and petals are very pale satiny rose, delicately veined with a deeper shade. The lip is narrow, rich carmine shading off towards the edge, and the throat deeply marked with yellow (award of merit).

Cypripedium Exul (R. J. Measures, Esq.).—This is a new species named by Mr. Ridley of Singapore, and confirmed by Mr. R. A. Rolfe. The habit is dwarf, but very vigorous; the flower stem purple. The lip is dull yellow deeply shaded with bronze. The petals are twisted and curving forward, yellowish green, with a brown central stripe. The dorsal sepal is pale green dotted with purple, and there is a very broad pure white margin. The lower sepal is pale green. There is a general resemblance to *C. insigne*, but the flower has distinct features (award of merit).

Cattleya hybrida Burberryana (Messrs. Sander & Co.).—This is a cross between *C. intricata*, *Rhfs.*, and *C. superba*, and is a distinct and beautiful form. The sepals and petals are delicate rosy blush, and the lip rich purplish magenta, the colouring being evenly disposed over the whole of the labellum (first-class certificate).

Odontoglossum Wendlandianum (Messrs. Sander & Co.).—A new species introduced from the United States of Columbia. It is a small-flowered form, very distinct and attractive. The sepals and petals are wavy and curved, white, blotched with pale brown, except towards the base, where the colour brightens to rosy purple. The lip is white with a large central brown blotch and other smaller ones (award of merit).

Oncidium Gravesianum (Messrs. Sander & Co.).—A distinct and profusely flowered species, introduced from Parahiba and exhibited for the first time. The pseudo-bulbs are brownish purple, and the flowers borne on long spreading growths. The sepals and petals are deep brown with a few streaks of green, the lip clear yellow with a broad brown margin (award of merit).

Rhododendron racemosum (Messrs. Veitch & Sons).—This species was raised from seed received from China, and proves to be perfectly hardy. The plants shown were lifted from the open ground, and were very dwarf, being less than 6 inches high. The leaves are small and oval shaped. The flowers are borne in clusters. They are soft blush in colour edged with rose. This is likely to prove a useful plant, and it would be interesting to hear more about it. A question was raised as to the nomenclature (first-class certificate).

Amaryllis Sylvia (Messrs. Veitch & Sons).—A hybrid obtained by crossing *A. reticulata* with *A. Bernard*, both the parents being shown. The plant has the reticulata foliage. The scape bears two flowers, white deeply suffused with rosy crimson, and very attractive (award of merit).

Amaryllis Charles Penny (The Rt. Hon. Viscountess Hambledon).—A very richly coloured variety, being intense crimson shaded with purple. A large substantial flower. The scape was stout and bore two flowers (award of merit).

Asilbe Thunbergi (Messrs. Veitch & Sons).—A handsome deciduous shrub with long spikes of creamy white inflorescence that has now been some time in cultivation and is fairly well known. It would no doubt prove valuable for forcing (first-class certificate).

Grevillea robusta elegantissima (Messrs. Veitch & Sons).—A beautiful new form, a sport from *G. robusta*, but with more graceful drooping foliage. It will prove a valuable plant for decorative purposes, and may supersede the type (first class-certificate).

In the afternoon a paper on English Florists' Tulips by the Rev. F. D. Horner was read. There was a good attendance.

SCIENTIFIC COMMITTEE, April 12th.—Present: Dr. M. T. Masters, in the chair; Mr. Morris, Mr. McLachlan, Mr. Michael, Rev. W. Wilks, Professor Green, Dr. Müller, Rev. G. Henslow, Hon. Secretary; and Mr. Farmer, visitor.

Galls on Ribes.—A report was received from Mr. E. A. Fitch upon the galls on *Ribes aureum*, in which he observed that "the only sure thing to be said is that the galls are made by an unknown species of *Phytoptus*, allied to that making the well known witch knots on Birches." (See "Entomologist," vol. x., pages 83-6, April, 1877). He remarks that the species of *Phytoptus* are but little known in this country.

Narcissus bulbocodium, Fasciated.—Mr. Morris exhibited a specimen with five flowers united, and remarked that of twelve pots at Kew every

plant bore fasciated stems. Mr. Wilks observed that in this species fasciation is constantly occurring.

The Branching of Endogens.—Mr. Morris exhibited specimens illustrative of the apparent dichotomy in certain plants. In Pandanus, Agave, Yucca, and many other plants, the dichotomous arrangement of the branches is due, not to a bifurcation of the bud, as is usually supposed, but to the occasional development of a single axillary bud. The growth of this bud soon equals that of the parent axis, and causes the deflection of the latter, so as to give a forked appearance. This was shown to be the case in a specimen of Pandanus pygmaeus. In a specimen of Aloe socotrina, on the other hand, the pseudo-terminal position of the inflorescence terminating the axis had led to the growth of the axillary buds, which were lengthening out into branches of a dichotomous character. A good example of the forked appearance, caused by the destruction of the terminal bud, was shown in a drawing of a Cocoa-nut Palm; while a similar result in an exogen, due to an abortive terminal bud, was illustrated by the common Lilac.

Scale Insects on Palms in W.I.—A communication was read from Mr. Cockerell of Jamaica explaining difficulties in the way of carrying out experiments for their destruction, as the people there can only test the value of a statement by results, and if these failed prejudices against future suggestions would arise. Again, since Cocoa-nuts are attacked by many enemies, even if a remedy proposed should answer for the scales, the trees might perish from other causes. He doubted whether scale insects ever killed them, though, having weakened the trees, they might then fall a prey to other parasites. Moreover, different scale insects have different habits; some, as—e.g., Aspidiotus palmæ appears to live only on the Cocoa-nut, while A. articulatus infests many other plants, so that if the latter were destroyed on Palms it would soon re-infest them from other sources. He thinks that all the injurious coccids have reached Jamaica in comparatively recent times; and the fact that their parasites have not been imported as well may account for their increase.

Raspberries Attacked by Fungi.—Some canes were forwarded from Mr. J. Willard, Holly Lodge, Highgate, covered with black spots, which have appeared during the winter months for the last five or six years. Transplanting and manuring, and the introduction of new sorts have failed as remedies. They were referred to Dr. M. C. Cooke for examination and report.

Narcissus Bulbs Attacked by Acari.—Mr. Michael reported upon the bulbs received from Rev. W. Wilks as follows:—"I find two species of acarids in large numbers, either of which is sufficient to account for the damage. Both are most injurious creatures, and commence destruction upon healthy plants. One is the large and conspicuous Rhizoglyphus (species probably echinopus, but there was no adult male specimen, without which the species cannot be determined for certain). This is a well known destroyer of bulbs. The other, which occurs in great numbers, is extremely minute and not to be detected without a microscope. It is a Tarsonymus; the species is most like oryzae (of Targioni-Tozzetti). All species of this genus are most destructive. It is only of late years that their existence has been detected on account of their small size, the transparent and colourless nature of their bodies, and their habit of burrowing into leaves, stalks, &c. I should say that in this case they were doing even more damage than the Rhizoglyphus. This is, I believe, the first instance of Tarsonymus being found in subterranean structures. A species of this genus, T. Buxi, destroyed every Box tree in Turin. Tarsonymus is well known to be very destructive to Sugar Canes in Barbadoes and Queensland, where it is known as the 'Basal rot.'" A discussion followed as to the best remedies to be applied. Mr. Michael suggested a treatment of soap and sulphur before planting, but added that it is almost impossible to destroy the eggs by chemical agencies. Mr. Wilks observed that (since it is not till spring time when the eggs are hatched) the application would be difficult, seeing that the bulbs are planted in the autumn; moreover, Mr. Dod has shown that one effect of sulphur upon bulbs is to arrest their growth by the formation of sulphurous acid gas. Rev. Mr. Haydon had suggested in his lecture on Daffodils the use of powdered quicklime, and although this might destroy the outer scales as well as the eggs which lie among them, experiments with bulbs of comparatively little value would show whether the interior portions remained uninjured. Mr. McLachlan suggested paraffin; Mr. Wilks remarked, however, that this remedy, though excellent for aerial organs, was fatal to roots, but whether it would be equally injurious to bulbs could only be proved by experiment. It was thought that if the bulbs were subjected to vapourised creosote it might prove effective. Dr. Müller mentioned that oil of cloves and oil of cassia used as a watery solution would probably prove capable of destroying the acari, as they are powerful antiseptics.

Carnations Attacked by Anthomyiidae.—Specimens were received from Mr. Perry, of Totteuham, of the well known parasite Hylemyia nigrescens, which attacks the crowns, nodes and basal part of the stem.

Lettuce Mildew.—The Lettuces grown in the market gardens near Ham, Twickenham, &c., are much damaged this year by Bremia Lactucæ, formerly known as Peronospora gangliiformis, Berk., described by Rev. M. J. Berkeley in 1846 as Botrytis ("Journ. Hort. Soc." i., t. 4). References to the literature are given in Cooke's "Handbook of British Fungi." Mr. W. G. Smith devotes a chapter to this parasite (chap. 34, "Diseases of Field and Garden Crops") in which he observes that "when frame Lettuces are attacked, a good plan for the destruction of the fungus is to give as much air as practicable, and if possible to leave the frames open for at least a part of one cold night, as a short exposure to cold or slightly frosty air will not materially hurt the young Lettuces. As

resting spores are found in old rotting stems, all decayed plants should of course be burnt, especially old stumps, as in them the resting spores of the mildew often exist in myriads."

Primula Forbesi.—A growing and flowering plant was again exhibited by M. Vilmorin. This species was shown by him on Oct. 6th, 1891, when specimens were presented to Kew and Chiswick. At both establishments the plants are in a flourishing condition.

Schizocodon soldanellioides.—A plant was exhibited by Captain Torrens, Poaston Manor, Hayes Common, Kent. It is allied to Shortia, both belonging to the order Diapenseæ. A vote of thanks was unanimously given to the exhibitor.

Angræcum sesquipedale, Monstrous.—Mr. C. Whitfield King sent a specimen in which one of the lateral petals was spurred, making a supernumerary labellum.

A NEW WALL NAIL.

MESSRS. THOMAS FRANCIS & CO., Lion Works, Sparkbrook, Birmingham, send us specimens of a new wall nail, Chandler's Patent, which they are introducing to notice. It is designed to do away with the separate use of nails and shreds by combining the advantages of both. The shanks are of the usual character, being made of malleable iron, but they are furnished with heads of soft lead, which can be bent over to form a loop or clip. Thus in fastening the growths of fruit

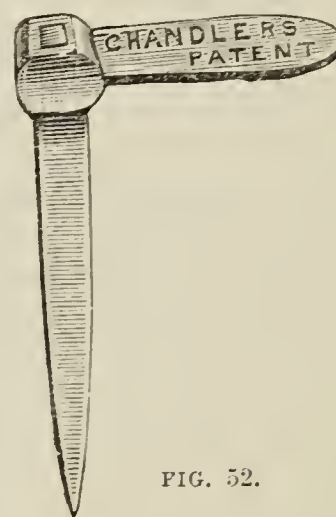


FIG. 52.

trees, Roses, or climbers to walls, the nails are driven in close to the shoots and the soft heads bent over with the fingers so as to hold the growths in the desired position. The idea is a very old one, but the new nails are better than the old ones we have used, and will probably find an extensive market. Fig. 52 represents them, and they can be had of all ironmongers and seedsmen at a reasonable price.

FACTS ABOUT GRAVEL WALKS.

THOSE who are quite satisfied with their walks after being dressed with weed-killers and treated as "R. I." describes may by all means be allowed to rest contented, but there are many instances in which that practice alone would not be satisfactory. Much as I value weed-killers, I find that even with their use walks become too much discoloured to be satisfactory without an occasional turning, especially in parts where there is not much traffic. I suspect, however, the whole thing depends upon the kind of gravel one has to deal with, and "R. I." has touched upon an interesting point when he speaks of stones being grubbed from the bottoms of walks when turning the gravel. In our own case we should be glad to find a few within 3 inches of the surface to mix with the large quantity of fine gravel above them. Without attempting to prolong this discussion I will say this much, that if "R. I." had at any time had to deal with a walk similar to the one I have had in hand lately I am inclined to think he would have adopted the same course as I did under the circumstances. Certainly I will fearlessly challenge him to show how one could be put in as satisfactory a condition at so small a cost. This, I think, represents a pretty good instance of the practical application of true economy. In regard to the risk of causing a fresh crop of weeds to grow on the surface, I will venture to assert that 95 per cent. of gardeners have no fear on that point, as they know full well that practice shows the result to be just the reverse.—H. DUNKIN.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).

THE Exhibition of the Southern Section of the above Society was held at the Drill Hall, James Street, S.W., in connection with the Royal Horticultural Society, on Tuesday, April 19th. The space allotted for exhibits was fairly well filled, but as a whole the Show was not up to its usual standard, owing no doubt to the recent unpropitious

weather. The following notes embody the names of the principal prizewinners.

In the class for twelve Auriculas, dissimilar, there were six entries, and the competition was somewhat keen. The leading prize went to Mr. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, for a charming collection. The varieties shown afforded evidence of good culture, the trusses being very fine and the pips of perfect symmetry. Mr. Douglas's exhibit included Elaine, Acme, Fanny Glass, Marmion, Abbé Lizst, Mabel, Prince of Greens, Mrs. Potts, very fine self, purple margin; Heroine, Magpie, Rev. F. D. Horner, and Black Bess. Mr. T. E. Henwood, Reading, was a good second with meritorious plants. Mr. C. Turner, the Royal Nurseries, Slough, was third; P. J. Worsley, Esq., Rodney Lodge, Clifton, fourth; Viscountess Chewton, Bookham Lodge, Cobham (gardener, Mr. A. J. Sanders), fifth; and Mr. G. Edgar Frere, The Camels, Wimbledon Park, S.W., sixth. Mr. Douglas was also awarded first honours for six dissimilar Auriculas. The best varieties shown were Acme, George Lightbody, Marmion, Abbé Lizst, and Mrs. Potts. As in the first mentioned class the trusses were excellent, and finer than those shown by Mr. Henwood, to whom the second prize was awarded. Viscountess Chewton was placed third for good plants; Mr. J. Sargent, Millfield, Cobham, fourth; Mr. Turner, fifth; and Mr. P. J. Worsley, sixth. The entries for four Auriculas, dissimilar, were not numerous, neither were the exhibits so good as in the classes already mentioned. Mr. W. Badcock, Oxford Road, Reading, was first with Richard Headly, Black Bess, Marmion, and the Rev. F. D. Horner, the latter a charming green-edged variety. Mrs. Kyrke Penson, Dinham, Lndlow, Salop (gardener, Mr. J. Collier), was second; Mr. C. Phillips, Reading, third; Mr. W. L. Walker, Bulwerske Road, Reading, fourth; and the Rev. L. R. Flood, The Rectory, Merrow, Guildford (gardener, Mr. J. Gilbert), fifth. There were six entries in the class for two Auriculas, dissimilar, and that number of prizes were awarded. Mr. Badcock secured the first for fine plants of Richard Headly (grey-edged), and the Rev. F. D. Horner (green-edged). Mr. C. Phillips was second, Mr. W. L. Walker third, the Rev. F. D. Horner, Low Fields, Burton-in-Lonsdale, fourth, Mrs. Kyrke Penson fifth, and the Rev. L. R. Flood sixth.

Neither were the single specimens in the green-edged section so numerous as might have been expected, and consequently the competition was not very keen. Mr. Douglas was awarded first and fourth for the Rev. F. D. Horner and Monarch respectively; Mr. W. Badcock gained second and eighth for two plants of Rev. F. D. Horner, with fine trusses; Mr. T. E. Henwood third and sixth for plants of the same variety; and Mrs. Kyrke Penson fifth and seventh. For a single specimen of the grey-edged class the first prize went to the Rev. F. D. Horner for Samuel Barlow, which had three pips of large size and perfect symmetry. Mr. W. Smith, Bishop Stortford, was awarded second for a good specimen of George Rudd; Mr. W. L. Walker, third; Mr. Douglas, fourth; Mrs. Kyrke Penson, fifth; and Viscountess Chewton, sixth. Of white-edged single specimens Mr. T. E. Henwood showed the best, the variety being John Simonite. The pips were very fine and remarkably well powdered. The second and third prizes went to Mr. Douglas for good specimens of Acme, which has a large truss. Mr. Turner won fourth and eighth for Beauty and Ganymede, Viscountess Chewton fifth, and Mr. W. Badcock seventh. Single specimens of the selfs were more numerous than the other types, and the competition somewhat keener. The Rev. F. D. Horner was first for a fine specimen of Precision, a beautiful variety with a purplish margin. The same exhibitor gained the second prize, showing a plant of Kathleen. Mr. Henwood won third, fourth, and fifth prizes with good specimens of Mrs. Potts. Mr. Badcock came in sixth, Mr. P. J. Worsley, seventh, and Mr. R. Dean, Ealing, eighth.

To the ordinary observer the Alpine Auriculas are more beautiful than the various edged types, and those shown in this case were no exceptions to the rule. For twelve dissimilar varieties the first prize went to Mr. W. L. Walker, who staged a highly meritorious collection, the trusses of bloom being exceedingly fine and remarkable for their freshness. The varieties shown in this collection were Defiance, T. E. Henwood, Mrs. Martin, Hotspur, Edith, and various seedlings raised by Mr. Henwood. Mr. C. Turner, who showed good examples, gained second place; Mr. Douglas, third; James Weston, Esq., Ravenholme, Balham, fourth; and the Rev. L. R. Flood fifth. The first prize for six varieties also fell to Mr. Walker, who showed seedlings of great merit. Mr. Turner was placed second, Mr. Phillips third, Mr. Douglas fourth, and Viscountess Chewton fifth. The best four dissimilar Alpine varieties were shown by Viscountess Chewton, the varieties being King of the Belgians, Diadem, Sensation, and Mercury. Mr. C. Phillips was second; J. W. Melles, Esq., Sewardston Lodge, Chingford, third; and the Rev. L. R. Flood fourth. For a single specimen of Alpine Auricula with a gold centre, Mr. Turner was first; Mr. Walker second; and Mr. Douglas third. Mr. Turner was also first for a single specimen with white or cream centre, showing Mary Francis, a charming variety with a clear white centre and purplish violet margin. Mr. Walker was second with Countess, a cream-centred kind, and the same exhibitor won the third and fourth prizes respectively.

In the class for twelve Fancy Auriculas, dissimilar, there was only one entry—namely, Mr. Douglas, to whom the first prize was awarded. The varieties shown were Evangeline, Twilight, Rosette, Lalla Rookh, Innocence, Quakeress, Belle, Flambeau, and seedlings raised by Mr. Douglas. The best seedling self, named Mabel Phillips, was shown by Mr. C. Phillips. This variety was also certificated, and is referred to elsewhere. The Rev. F. D. Horner was awarded first prize for the best

green-edged variety, showing a charming kind named Commander. For fifty Auriculas, not less than twenty varieties, Mr. Douglas gained first prize. The most conspicuous varieties in this collection were General Grahame (grey edged), Acme (white edged), Sapphire (self), Dr. Kidd (white edged), Dr. Hardy (green edged), and Heatherbell (white edged). Mr. Turner came in second with smaller plants and trusses; the Guildford Hardy Plant Nursery, third; and Mr. James Weston fourth.

The best six Polyanthus, dissimilar, gold-laced, were shown by Mr. R. Dean, Ranelagh Road, Ealing; and Mr. James Weston was awarded second prize. J. W. Melles, Esq. (gardener, Mr. G. Nicholson), was third. Mr. A. Mottershead, Slough, was awarded first for three Polyanthus of the same type; Mr. Douglas was second, and Mr. James Weston third. Single specimen Polyanthus were exhibited and adjudged, but of those staged the show cards were removed. Mr. Dean was also first for twelve Polyanthus, and the same number of single Primroses, and Mr. Douglas second.

Mr. Douglas gained first prize for the best twelve Primulas, the species shown including *P. nivea*, *P. villosa*, *P. rosea*, *P. denticulata*, *P. amœna*, *P. obeonica*, *P. Nelsoni*, *P. decora*, *P. hybrida*, and *P. japonica*. Mr. W. Harper, Mill Mead Nursery, Guildford, was second in this class. O. T. Hodges, Esq., Lachine, Chislehurst, staged the best six Primulas, distinct species, this exhibit including *P. cashmeriana*, *P. marginata*, *P. viscosa*, *P. nivalis*, and *P. Clusiana*. The Guildford Hardy Plant Nursery was awarded first prize for six double Primroses, showing *Primula acaulis* fl.-pl. alba, and various other varieties. Mr. R. Dean showed the best hamper of Primroses arranged for effect, Mr. G. Phippen, Reading, coming in second.

The following varieties were certificated:—

Mabel Phillips (C. Phillips).—A beautiful self variety, the centre being a pure white, margined with rich purple. Pip medium in size and perfect form (first-class certificate).

Evelyn (C. Phillips).—A rich golden centred variety with a deep crimson margin, changing to a lighter colour towards the edges (first-class certificate).

Venus (Simonite).—A fine white edged variety, with yellow centre, pure paste, and rich dark maroon body colour (first-class certificate).

Dinham (Penson).—A grey edged variety of exceptional merit, the pips being large in size and of good form (first-class certificate).

A luncheon was held in the Hotel Windsor after the judging was concluded. Mr. Martin Smith presided, and the proceedings were of a very pleasant character.

HACKWOOD PARK.

THIS, one of the seats belonging to Lord Bolton, is situated about a mile and a half from Basingstoke Station on the main line from London to Portsmouth, Southampton, and Salisbury, and is a beautifully wooded estate, the Park comprising about 1100 acres. The principal trees are Oak and Beech, the latter being especially fine; there are also some very fine Thorns, which, although they are of a great age, show by the vigorous annual growth that the soil is of good quality. The Park is entered near a substantial lodge on the north side of the estate, and we then follow a winding drive through some grand Oaks, planted rather closely together, which will in time produce very fine timber, so straight and clean is the growth. The Beeches perhaps constitute the chief feature of the timber trees. The mansion is squarely built and substantial, with several acres of well-kept lawn in front, not marred by flower beds of any kind. Pleasing, but not extensive, views are obtained from the house. The kitchen garden of 6 acres inside the walls is approached from the house by broad grass paths under shady trees, affording delightful promenading space during the summer, and even in the early autumn when I paid my visit to these gardens.

The kitchen garden is excellent, well protected by trees on all sides, yet not too near to do any injury by the exclusion of sunlight at any time of the day or year. The walls round are at least 14 feet high, and furnished with fruit trees, and in the past season there were exceedingly heavy crops of Plums of the leading useful varieties on that part specially set apart for this fruit, the trees showing that they receive most careful attention in all respects. The wall at the north end of the garden, and which has of course a southern aspect, was well clothed with Apricot and Peach trees, the former especially having carried heavy crops of excellent fruit, Moor Park being the most striking. Peaches will in due course give serviceable fruits. Particularly healthy, well trained, young horizontal Pear trees are noticeable on a west wall. There was a heavy crop of Morello Cherries and Gooseberries on the usual northern aspect, as well as on a low wall across the kitchen garden, which is employed for testing new kinds of fruit trees—mainly Plums—as they come out with a view to supplanting any that show signs of decay on the ordinary walls, and well was this wall fulfilling its mission judging by the health of the trees.

Down the centre of the kitchen garden is a grass path 12 feet in width and fully 250 yards long, and on each side of it is a border 6 feet wide, with herbaceous plants, freely intermixed with annuals, Dahlias, and the usual occupants of such borders. The cross paths are all grass, and treated in the same way with flower borders. The effect, as can be imagined, is exceedingly fine viewed from either end. Dahlias of the show type were growing apparently without any special attention in an exhibition point of view, yet were producing

blooms much superior to many seen in first prize stands. *Harpalum rigidum* was a conspicuous feature in the borders, and so were Asters of the large flowering type. The bright colours of these below contrasted well with the yellow *Harpalum*, the luxuriant vegetables behind, and the well-kept grass in front. Where cut flowers are required in quantity such a border as this must help greatly for many months in the year. All the paths in the kitchen garden are of grass beautifully kept, and I daresay they have a very pleasing appearance during fine weather; but, unfortunately, my visit was made during a heavy downpour of rain, therefore I saw them at their worst. I prefer a combination of grass and gravel paths in a kitchen garden. The soil is a stiff loam approaching clay, and if well managed it is very fertile. Abundance of decomposed leaves and horse manure is most suitable for soil of this class, and seasonable manipulation not forgotten. Heavy cowdung and trampling upon it during wet weather I should say is about the worst form of management such a soil could receive. Judging from the crops of all kinds, that is not the treatment accorded to this garden. Large breadths of the most popular and useful vegetables were growing, every one seemingly planted or sown in the exact place and manner desirable to reap the best results. Space forbids any one kind being particularised, and it would be difficult where all are good.

The glass department, although not very extensive, is thoroughly well adapted to its requirements, the houses being well placed and contiguous to each other in two blocks. The vineries are not lofty structures, but are of the right kind for conserving the heat, being of lean-to form. From the appearance of the wood the Vines in the early house had carried a good crop of fruit. Successional houses were all that could be desired—especially a late house, in which were several rods of Muscat Alexandria. Peaches and Nectarines betokened, by the wood and leaves of the trees from which the crops had been gathered, that they left nothing to be desired for future promise. *Violette Hâtive* of the former fruit and Lord Napier Nectarine were both numerous and good. Very healthy Fig trees filled the front of one lean-to house, with Peaches covering the back wall in rude health, showing that a combination in fruit culture can be efficiently carried out.

Two ranges of low span-roofed houses were devoted to such crops as Melons, Cucumbers, and stove plants. In the former Hero of Lockinge and Syon House were the most conspicuous. Handsome fruits there were; it would be almost impossible to be otherwise, considering the state of the foliage, the soil being evidently well adapted to Melon growing. The stove plants were of the usual kind, small and medium sized, suitable for home decoration rather than for exhibition, although some are grown which take leading prizes at local shows. I noticed a capital stock *Caladium argyrites* in small pots, one of the most useful of an extensive family for grouping purposes or small vases. Many of the new and approved varieties of Crotons were growing; single-stemmed plants, with highly coloured leaves, fit for any kind of decorative work. *Calanthes*, mainly *C. Veitchi*, are largely and well grown; their use for winter flowering is here so well known that special attention is given them. A thousand Strawberries in pots are annually forced, consisting of leading varieties, with a few of Noble, which is here a success.

Chrysanthemums have a place assigned them in this liberally kept and well-managed garden; 300 plants are cultivated for producing large blooms, besides many others as decorative plants, all of which betokened by their appearance that nothing Chrysanthemums require is here lacking. The gardens altogether reflect great credit on their custodian Mr. Bowerman, who, I was sorry to find, had been compelled to leave home for a time owing to illness, which all connected with him, from employer to labourer, deeply deplored.—E. M.



FRUIT FORCING.

PEACHES AND NECTARINES. — *Earliest Forced Houses.* — Cease syringing the very early varieties, Alexander, Waterloo, Early Beatrice, Early Louise, and Early Rivers as soon as the fruit gives indications of ripening. Do not supply water excessively at the roots, yet maintain the soil in a moist healthy condition, and afford moderate air moisture by damping available surfaces occasionally. Hale's Early, Royal George, and Stirling Castle will need liberal supplies of water and, perhaps, nourishment to swell their fruits well. Where the crop is too heavy thin the fruits, for it is not the flesh but the stones that exhaust the trees. Tie the shoots well in, so as to give the fruit the benefit of all the sun and air possible and insure its colouring, drawing aside the leaves that shade it. Take every precaution to have the foliage free from insects before syringing ceases, applying an insecticide if there is any trace of spider, syringing forcibly afterwards.

Trees Started at the New Year.—Do not hurry the trees until the stoning is completed, making sure of that by trying a few fruits with a knife. Continue the temperature regular at 60° to 65° by night, and 70° to 75° by day, until the stoning is completed, then, if the ripening is desired to be accelerated, it may be kept at 70° to 75° artificially, but falling 5° at night, and keeping through the day at 80° to 85° from sun heat. Close sufficiently early in the afternoon to run the temperature up to 90° or 95°, with plenty of atmospheric moisture, syringing early enough to have the foliage fairly dry before night, and admitting air early so as to let the pent-up moisture escape before the sun acts powerfully on the leaves. Afford copious supplies of water to the roots and liquid manure if necessary, with a light mulching of spent manure. Let the fruits have all the light possible, placing them with the apex to the light, drawing the leaves aside or shortening them. Thin finally directly the fruit has stoned. Secure the growths as they advance, keeping them thin.

Houses Started Early in February.—With the fruits the size of Walnuts the thinning should be effected to a few more than will be required for the crop. Encourage no more shoots than are necessary to furnish the trees with next year's bearing wood and extension growths. Pinch the shoots retained to attract the sap to the fruit at two or three joints, and to one afterwards as produced. Allow all plenty of light, for the solidity of the wood depends on the fibrous nature of the roots and the exposure of the growth to light. Ventilate early, commencing at 65°, and increase it with the sun heat, having it full at 70° to 75°. Maintain a temperature of 55° to 60° at night, and 60° to 65° by day artificially.

Trees Started in March.—When the Peaches are fairly swelling remove the superfluous fruits, beginning with those on the back or under side of the trellis, then proceed with the rest when it is seen which take the lead in swelling, removing those not wanted gradually. Follow up disbudding until the growths are removed to the number required, always reserving a shoot at the base of the current bearing wood, leaving those on extensions 15 to 18 inches apart, and allowing that distance between the extensions. Retain a shoot on a level with or above the fruit, and, if not wanted for extension, pinch out its point at the third leaf, and to every succeeding joint of growth. Train all other shoots in their full length as far as space permits, keeping them secured to the trellis, with ample space in the ties for the growth to swell. A temperature of 55° at night, and 5° to 10° advance in the daytime is sufficient, ventilating freely above 65°. Syringe twice a day in favourable weather, but once only when dull, and keep the borders well supplied with water, never letting the roots lack moisture.

Late Houses.—The trees are a pleasant sight, and the odour is significant of a good set. Bees abound in the houses and brush the flowers over with results alike beneficial to the grower and the apiarian. A little fire heat to maintain a day temperature of 50° to 55° insures advancement, admitting a little air top and bottom, so as to promote a circulation. A chink at night is also beneficial, excluding frost by maintaining the temperature at 40° to 45°. Admit air freely at and above 55°, not allowing the temperature to exceed 65° without full ventilation. A genial condition of the atmosphere can be maintained by damping the borders and other available surfaces occasionally, but avoid making the atmosphere so humid that moisture condenses on the blossoms during the night.

Unheated Houses or Wall Cases.—In these the chief points are to secure a well-ventilated atmosphere in the early part of the day, and to have the border well supplied with moisture, but not needlessly wetting the surface, which is best rather dry, especially towards evening, as it attracts moisture in that state, closing the house before the temperature is much reduced, so as to enclose a moderate amount of sun heat. About 5 P.M. is usually sufficiently early to close the house for the day, as walls give out heat some time after closing, generally sufficient to insure the safety of the blossoms if it is kept dry. Damping or watering should be done in the morning, so that superfluous water may be dissipated.

MELONS.—Secure every ray of light to plants swelling their fruits by keeping the glass clean, and supply water liberally to the roots, or liquid manure, providing plenty of atmospheric moisture. Overcropping not only renders the fruits small, but prejudices the quality, which is proportionate to the amount of solidified matter, and its transformation in ripening. This is best effected by a somewhat dry and warm atmosphere, with diminished supplies of water at the roots; but there must not be any deficiency until the fruit commences ripening, and not then if the plants are to continue for a second crop. A little air constantly will keep the fruit steadily ripening. During the setting of the fruits a drier condition of the atmosphere and soil is advisable, but the soil must not become so dry as to cause the foliage to flag. Attend daily to setting the flowers, stopping the growths as the flowers are fertilised. Keep the temperature at 65° to 70° at night, 70° to 75° by day artificially, and between 80° and 90° with sun heat, ventilating carefully at all times, avoiding sudden fluctuations in the moisture and of temperature.

Plants in pits and frames are showing fruit, and, unless they are sufficiently numerous to insure two to four fruits on a plant setting about the same time, it is desirable to remove the first flowers, as with more shoots there will be no difficulty in securing five or six female blossoms of simultaneous growth on each plant, which should be

fertilised. Maintain good linings, bottom heat, and a dry condition of the atmosphere when the fruit is setting. After the fruits are set let them be raised on a flower pot above the foliage. Earth up the plants as they advance in growth, having this effected before the fruit is set, as it cannot well be attended to afterwards in frames. Make new beds and put out plants, sowing, potting, and otherwise preparing for planting successional beds.

CUCUMBERS.—Shading may be necessary in the middle of the day for an hour or two in bright weather to prevent flagging, but with the plants healthy and the roots abundant very little will be necessary. In watering plants in pits and frames do it early in the afternoon, so as to get the foliage dry before nightfall. Maintain a good bottom heat by linings renewed as required. Ventilate early and moderately, husbanding the sun heat by early closing, and employ a thick night covering over the lights. Avoid overcrowding, keeping the shoots stopped to one joint beyond the fruit, and remove bad leaves as they appear. Keep young plants near the glass; sow seed for raising plants to occupy frames after forced vegetables or bedding plants are removed. Wire-worms are sometimes troublesome, coming in with the turf, and as its grass is dead they are usually ravenous. They cannot resist baits of Carrot, Turnip, Mangold Wurtzel, or Potato cut into thick slices and inserted in the soil, examining the baits every morning. Millipedes and woodlice are equally fond of those vegetables, though woodlice prefer boiled Potato wrapped in a little hay, examining them daily. Water plants in houses abundantly, keeping plenty of moisture in the atmosphere all day by frequent damping, syringing the plants both ways about 3.30 P.M., closing the house at the same time. To secure straight fruit employ glass tubes.

PLANT HOUSES.

Solanums.—Plants that were cut hard back and have broken freely should have half the soil removed from the roots and placed again in the same size pots. For the present grow them in a vinery at work, and pinch any shoots that are taking the lead. Watch for aphides and destroy them at once if they make their appearance. These plants grow well in loam, sand, and one-seventh of decayed manure.

Primula obconica.—Plants intended to produce seed should be placed where they can enjoy abundance of air when the weather is favourable. Young plants in thumb pots should be grown on a moist base where they can be shaded. When exposed to bright sunshine the foliage assumes a sickly hue and the plants become a prey to red spider.

Chrysanthemums.—Early flowering kinds should, if room can be found for them, be placed in the pots in which they are to flower. They must be properly hardened before potting, and then placed carefully outside where they can be sheltered from rough winds and frost. Plants that have been recently rooted, and are well established in small pots, should be placed into 5-inch without delay. These plants are often run up weakly by keeping them in a close confined atmosphere in their early stages. Cuttings may still be inserted for providing plants for decorative purposes.

Francoas.—These are most useful for furnishing in 5 and 6-inch pots, and for these sizes it is a good plan to raise the plants from seed annually. The smallest plants from last year's seedlings may be potted for another year. The remainder may be divided into two sizes, and brought into flower at different times. If the largest are placed in a temperature of 45° to 50° they will soon produce flower spikes, while the others should be kept cool. Seed may be sown at the present time if this has not already been done.

Carnation Miss Joliffe.—If cuttings of these have been inserted together in pots or pans, pot them singly directly they are rooted; 2½-inch pots will be large enough. As soon as they are established gradually harden the plants to cool treatment. Carnations are soon spoiled if kept in heat. Cuttings of these and tree kinds may still be rooted. Strong plants for flowering under glass should be finally potted.

Calceolarias.—The earliest plants will be coming into flower; watch for aphides and destroy them at once. Place the later plants in their flowering pots, and grow them in cold frames.

Amaryllis.—As plants go out of flower place them in a light house, not too warm, where air can be afforded daily to insure sturdy foliage. Growth must be well developed, well ripened, and the plants thoroughly rested, then they will be certain to flower profusely. These plants are so easily raised from seed that if a few good varieties are obtained a stock of seedlings may soon be had, many of which will be equal to named kinds.

Double Primulas.—Plants that have been kept somewhat dry may have the lower leaves removed and the stems covered with light soil. If kept moist after this they will soon emit roots near the collar, when each portion may be taken off and potted. It is a mistake to place the plants in brisk heat to hasten the process of rooting, for this induces damping.

Salvia gesneriflora.—This is a very showy plant for this period of the year; cuttings may still be rooted. If large plants are needed shorten back those which have flowered in 6 or 7-inch pots, and place them in 10-inch, or an even larger size, when they will make specimens 5 or 6 feet high, and fully 3 feet through, almost perfect pyramids, during the season.

THE BEE-KEEPER.

APIARIAN NOTES.

NAPHTHALINE AND FOUL BROOD.

I DESIRE to thank Mr. John M. Hooker for his letter on page 268. It appears there are two kinds of naphthaline, as there are of bee-keepers—crude and refined—the one cheap, the other costly. Mr. Hooker first told us that naphthaline was a certain cure for diseased hives, and now he advises us to use it where no foul brood exists. I think most people will agree with me that in the case of health medicines should neither be given nor taken.

DR. LORTET'S REMEDY.

This appears to Mr. Hooker to be a perfect cure; yet if we are to believe him there are "bad cases of foul brood" incurable. Did Mr. Hooker ever know of good cases of foul brood? In these bad cases of foul brood we are advised to destroy the bees by smoking them with sulphur in the old-fashioned way at night, then after awhile to burn the hive and its contents. Why make two operations? Why not set it over some kindling material, sprinkle it well with petroleum, and set fire to it at once?

CURING FOUL BROOD.

If your hives are adapted for profitable bee-keeping, destroy nothing about them whatever. The moment foul brood is suspected examine thoroughly, and, if present, immediately the bees cease flying take a tub of water near the hive, and turn all the moveable parts and covering into it preparatory for after disinfecting. Now take sheets of carbolised paper, and slip one in each seam between two outer frames, place these in an iron bath, and proceed until one-half are removed, then begin at the other side; the bees will retreat towards the empty side. When all the frames are removed slip a box hive over the cluster of bees, and they will enter it. When this is effected set it upon a board, then upon its original stand, and remove all that belonged to it within doors out of the reach of bees. Let the bees remain in this state and position without any food for at least twenty-four hours. After that transfer them to another box hive, and set the first one aside for disinfection. Let the bees remain in the second box until comb is being built after they have been fed. Change the bees again into another clean box, while the second one is put into quarantine along with the other things, and repeat the process if thought necessary, allowing from four to seven days to complete the purification. Success will be certain even if you return the bees to their original hive, provided it has been thoroughly disinfected. I have previously described the process in this Journal, and it has answered in cases after the burning of bees and hives was advised by the King William Street sages.

TURN ALL TO PROFIT.

There is money in foul broody combs. The honey in the clean part of the hive is fit for use, and the combs are worth melting into wax. Foul brood has never been known to be transmitted by wax, but it can be used for other purposes than comb foundation. It is foolish to destroy hives by burning unless they are of some peculiar type used by Mr. J. M. Hooker.

THE ORIGIN OF FOUL BROOD.

There is no doubt that feeding with honey in many cases has been the cause of foul brood. It was the cause of the outbreak in the late Mr. T. W. Woodbury's apiary, and in scores of others I could name. Doubtless it was foreign honey, but we must remember that there is not much, if any, difference in the composition of foreign and much of our native extracted honey. The extractor has not been the means of putting a superior honey into the market, but the reverse. I do not condemn extractors, but the way honey is extracted from unsealed comb containing water, pollen, and honey, as well as the compound of all the three. That is one of the methods by which infection is spread.

There are other ways of spreading the disease. If the refuse upon the solid floors of hives be examined, at least half a dozen different creatures will be found, all of them denizens of ill-kept hives, which move from one to another, and consequently carry the infection with them.

The ventilating floor prevents the bees carrying the débris (the source of infection) outside. The whole of it is caught upon the under floor and consigned to the fire.—A LANARKSHIRE BEE-KEEPER.

PUNIC BEES.

THE past winter here has been very trying to bees. The continuous foggy days during frost were too much for most races. Many stocks died from the cold damp weather, with plenty of stores. In my own apiary only those with Punic blood have wintered satisfactorily. Stocks with imported queens have wintered splendidly, though they come from a country where frost and snow are unknown. They were confined to their hives for six months, and made their first flight on March 16th; that is longer than I ever knew bees to be confined to their hives. They came out as dry and healthy as possible, there being no sign of dysentery or anything, and in two days were bringing in pollen.

There is one peculiarity about Punics that I have often noticed. In winter time and cold weather the aged bees—i.e., the old worn out bees—die in the hive instead of flying off a distance away to die. As every pure stock shows this peculiarity I must now accept it as a habit of the race. What the cause of it can be is yet only conjecture. I am inclined to think that our weather is too cold for them to fly away. "Lanarkshire" noticed the peculiarity as soon as cold weather set in last autumn, and wrote me to ask if I had not made a mistake in saying they were "hardy." I assured him the bees were the old worn out ones, and I did not feel alarmed. Their wintering proves that they are undoubtedly very "hardy" bees; also the way they work in cold chilly weather. I am more in love with them than ever, and I am so well satisfied that they will please all who try them, that I decided to sell every queen on the unheard of condition, that if after trial the race is not liked all money paid will be refunded in full—the buyers to be their own and sole judges.

There is another important fact to remember—viz, that with all the opposition about Punics not one person has condemned them, that is the true Punics. This fact speaks volumes for the value of the race.—A HALLAMSHIRE BEE-KEEPER.

EXPERIENCE.

THE few lines that I have written from time to time in the *Journal of Horticulture* I intend should be useful to bee-keepers. Having kept bees since I was seventeen years old, and being now over sixty, I may, I think, be considered to have had some amount of experience in the matter. I have in open competition gained many prizes both for honey and hives, and held my own against all comers. In recommending anything to bee-keepers I know only their interest; I have no axe of my own to grind, and do not desire to raise a controversy as a means of advertising any particular article or kind of bee, or of assisting any other persons to prop up anything they have written.—JOHN M. HOOKER.

COMB FOUNDATION.

ON page 267 "Lanarkshire" reminds me of a very pleasant visit to Glasgow, in the year 1876 I think, to an exhibition of hives and honey. The day after the finish of the show Mr. Bennett, Mr. C. N. Abbott, Mr. Alfred Neighbour, and myself paid a visit to "Lanarkshire" at Blantyre. He was not at home when we arrived, but his daughter was sent after him and he was soon with us. We were most hospitably received, and after some refreshment we were shown the bees and hives, and had the manner in which he worked them explained to us; but I have no recollection of anything being said about foul brood, or that he had it in any of his hives at that time. The conversation naturally turned to the show, and the fine Stewarton supers exhibited there, which had been built out on comb foundation. I then spoke of the foundation exhibited by "Lanarkshire," and expressed surprise that he did not obtain a prize, as in appearance I thought it equal to any there. At that time the guides I had used were simply thin pieces of wax sheet, not impressed. Seeing that I was interested "Lanarkshire" kindly made me a present of comb foundation bees and all, just as he had it back from the show.

The first opportunity I had I fixed it in a shallow super and put it on a very strong hive, but to my surprise the bees did not work in it. It was taken off at the end of the season, and it had not been touched. The following year I put it on another hive, but the bees would not take to the super, although very strong, which I could not understand at all. After a while the bees took to the super and filled it, but they had built between the comb foundation, which had become very hard, and they had not touched it. I kept this as a curiosity for several years, during which time I showed it to many well-known bee-keepers, among others Mr. Baldwin, Mr. Abbott, Mr. Neighbour, Mr. J. Hunter, and Mr. Cowan. The sheets of foundation formed separators between the honeycombs. The general opinion was that something had been mixed with the wax that the bees disliked. Soon after this I obtained a machine for making foundation from Mr. A. J. Root, and for awhile made my own foundation; but not having much time on my hands I sold it to Messrs. Neighbour, who have since supplied me with foundation such as the bees build out readily. I was not aware that foundation was used or made fifteen years before 1876. Is this so?

In any statement as to articles that appeared in the *Journal of Horticulture* "years ago" it would save your readers time and trouble if in all cases the year and page were stated.—JOHN M. HOOKER.



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Manures (*Constant Reader*).—The advice was good, even if it "surprised" you. Your letter arrived too late for the questions to be answered this week.

Improving Land (*A. E.*).—Your object in cultivating a small freehold as thoroughly and profitably as possible is unquestionably good, and we shall be pleased to give you the best advice we can on matters on which you need information. Your letter shall have early attention.

Low Hedge (*F. J.*).—Green or variegated Box would answer your purpose, and shrubs 18 inches high would grow well now if the roots were not dried in transit and a good watering given when planted. They should just touch when planted. Send the length of the hedge to a nurseryman, stating that you require well furnished shrubs, and he will send the requisite number. The hedge can be kept of the height and shape described by clipping with the shears. August is a good time for the last trimming.

Stachys tuberosa (*F. E. C.*).—We are not aware of the existence of an improved variety with considerably enlarged tubers. Selected tubers can be had from any dealer that will afford produce as large as the soil and methods of culture allow. This vegetable, though enjoyed by several consumers, is not likely to prove a "boon" to the community in any district. It is more of a novelty than a substantial food product. If "D. S.," to whom you allude, likes to send us a few of his very large tubers we will say how far they exceed in size others we have seen.

Ferns in Case Moulding (*R. B.*).—The cause of the fronds moulding is the atmosphere being too confined. They should have a little air, and the moisture should be wiped off the glass once a day in the morning, or air may be given to dry it up. The case should be opened a little—half an inch or so at top—so as to allow of a change of atmosphere. In other respects we think your arrangements and management good. Of the Ferns in your list the Gymnogrammas, Cheilanthes, and Nothochlœnas are not suitable. They require just the reverse of a close confined atmosphere, though they flourish in one that is moist. The others ought to do well.

Grafting Fuchsias (*Amateur*).—The Fuchsia may be grafted at any time, and almost in any manner, when heat, moisture, and a little shade can be given, and the wood used is thoroughly ripened. The stock should be beginning to grow, and be in advance of the scion in growth. The scion should just be breaking its buds, and the wood should be well ripened. Young wood will do very well if pretty strong; but a good plan is to use some 2 inches of a young shoot, with about 1½ inch of the older wood behind it, making a slice long enough in the side of the shoot to place the old and part of the new wood on it. The slice from stock and scion must be taken off with a clean sharp knife. Tie carefully with bast, make it air-tight with a little clay, cover with a little moss, and damp that frequently.

Radishes and Mustard and Cress (*J. Bannister*).—Radishes like a free, rich, but not recently manured soil. We have known good crops produced on the same ground for years, but it has been liberally manured after the Radishes were drawn for the crop succeeding. A mixture of two parts of superphosphate of lime and one part of nitrate of soda applied at the rate of 3 ozs. to each square yard when sowing or soon afterwards has a stimulating effect. The dressing would also be good for Mustard and Cress, but this ought not to be grown on the same plot every year, unless very full dressings of decayed manure are afforded and kept near the surface. Many Radish crops are prejudiced by sowing the seed too thickly. Overcrowding the plants is fatal to profitable crops, while thinning is a tedious process, and can only be regarded as the lesser of two evils.

Fruit Room (*E. G. K.*).—The thicker the walls the more equable will be the temperature of the house. We would have them 14 inches thick, but they need not be hollow walls; a thatched roof is also preferable to one composed of tiles. The floor would be better boarded, but it is not very material. The best arrangement for the shelves is a staging of laths, similar to that used to stage plants upon in greenhouses. One tier of staging may be placed above another, about 1 foot 9 inches apart, and the staging may be 3 feet

wide. If yours is a narrow house there will only be room for staging round the sides; but should the house be wide enough, another tier of shelves may be placed in the middle of the house. There ought also to be one or two windows, which should be provided with shutters. The windows should also be made to open. There should likewise be a fireplace or a small stove in the room.

House for Strawberries (*F. Ellis*).—In very few gardening establishments where Strawberries are largely forced are there to be found any other conveniences than shelves in forcing houses and heated frames such as you describe. The plants do much better in frames, and produce finer fruits with greater certainty than is the case upon shelves after the season has advanced and the sun has great power. On shelves when the sun is very bright and hot, not only do the flowers fail to set satisfactorily, but the fruit is often seriously injured by exposure to the sun. A heated frame where air can be admitted freely is admirably adapted for the purpose you have in view, but if you intend erecting a structure on purpose we should advise a low span-roofed house, or a three-quarter span, with a walk down the centre and a stage on each side. A house 9 feet high and from 10 feet 6 inches to 12 feet wide outside (including the walls) would be of a suitable size. If the side walls were 2 feet 3 inches above the ground level you could arrange small front lights for the purpose of admitting air when required. The reason we advise a house of this description is not only because you could get at the plants and attend to their wants better than in a frame, but because the house could be utilised for a variety of purposes after the Strawberry season was over to which the frame could not be applied.

Vines Unsatisfactory (*W. B.*).—The Vines have no doubt suffered from the severe forcing to which they have been subjected and have scarcely had time to recuperate. It would have been a good plan to have lifted the roots in the inside border and laid them in fresh compost instead of surface-dressing the border with turfy loam, lime rubbish, and half-inch bones, as these can only be of use when taken possession of by roots. We advise your doing what we suggest in the autumn after the leaves give indications of ripening but before they fall from the Vines, lifting the roots in the inside border, and laying them in fresh soil within one foot of the surface. You could not have anything better than loam, lime rubbish, and bones, for what the Vines evidently need are more active roots. If done carefully the work would not prejudice the following year's crop. We presume the border is well drained, if not that must be effected. In a year or two after operating on the inside border the outside may be taken in hand, and this will give the Vines a long lease of fresh vigour, and enable them to produce satisfactory crops of fruit. Beyond encouraging more growth this year, yet not crowding it, little may be done. If the Vines are weakly, and have the spurs much attenuated, it would be a good plan to train up fresh canes from the base of the old rods, and when the fruit is cut remove the old rods in favour of the young canes. This, however, would be best done gradually, so as not to cause too great a loss of crop all at once. The extra foliage would assist the current crop rather than hinder its swelling and perfecting.

Thinning Fruit and Crops (*A. Allen*).—The subject is undeniably of importance. It is concisely treated in Johnson's "Gardeners' Dictionary," where it is said that the exhaustion consequent upon the production of seed is a chief cause of the decay of plants. This explains why fruit trees are weakened or rendered temporarily unproductive, and even killed, by being allowed to ripen too large a crop of fruit, or to "overbear themselves." The thinning of fruit is, consequently, one of the most important operations of the garden, though one of the least generally practised. It is equally important to be attended to in all fruit-bearers, but especially the Vine, Nectarine, Peach, Apricot, Apple, and Pear. It should be done with a bold, fearless hand; and the perfection of that which is allowed to remain will amply reward the grower, in harvest time, for the apparent sacrifice made. But he will not reap his reward only in this year, for the trees, thus kept unweakened by over-production, will be able to ripen their wood, and deposit their store of sap in their vessels, so absolutely necessary for their fruitfulness next season. Thinning is a most necessary operation with plants as well as with the fruit they bear. The roots of a plant extend in a circle round it, of which the stem is the centre. If the roots of adjoining plants extend within each other's circle, they mutually rob of nutriment, and check each other's growth. Thinning in the seed bed is generally applied with too timid a hand.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (*Grange*).—We do not recognise the Apple. Probably it is a local or a Norman variety.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry

wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*Eveleigh*).—*Cypripedium hirsutissimum*. The plant was introduced from Assam in 1857. The species is highly worthy of cultivation. (*G. A. K.*).—*Dendrobium fimbriatum*. (*E. F.*).—1, *Dendrobium Wardianum*; 2, *Cattleya Mossiæ*; 3, *Odontoglossum Pescatorei*. (*F. K. B.*).—*Rubus spectabilis*, a native of Columbia, introduced to this country in 1827.

COVENT GARDEN MARKET.—APRIL 20TH.

TRADE at a standstill owing to the Easter holidays. No revival expected during the present week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	to	5	0	Grapes, per lb.	2	6	to 4 0
Apples, Canada and Nova Scotia, per barrel ..	12	0		20	0	„ New, per lb.	4	0	5 0
Apples, Tasmanian, per case.. ..	10	0		15	0	Lemons, case	15	0	2 0
Cobs, Kent, per 100 lbs. ..	0	0		0	0	Oranges, per 100	4	0	9 0
						St. Michael Pines, each ..	3	0	6 0
						Strawberries, per lb. ..	2	0	4 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	0	Onions, bnuch	0	3	0	5	0
Carrots, bunch	0	4	0	0	0	Parsley, dozen bunches	2	0	3	0	0
Canliflowers, dozen	2	0	3	0	0	Parsnips, dozen	1	0	0	0	0
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	2	0	3	0	0
Coleworts, dozen bunches	2	0	4	0	0	Salsafy, bundle	1	0	1	6	0
Cucumbers, dozen	4	0	6	0	0	Scorzonera, bundle	1	6	0	0	0
Endive, dozen	1	3	1	6	0	Seakale, per basket	1	6	1	9	0
Herbs, bnuch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	0
Leeks, bnuch	0	2	0	0	0	Spinach, bushel	2	0	0	0	0
Lettuce, dozen	1	3	1	9	0	Tomatoes, per lb.	0	4	1	9	0
Mushrooms, punnet	1	6	2	0	0	Turnips, bunch	0	0	0	4	0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	5	0	Maidenhair Fern, dozen bunches	6	0	to	9	0
Bonvardias, bunch	0	6		1	0	Marguerites, 12 bunches ..	3	0		4	0
Carnations, 12 blooms ..	2	0		3	0	Mignonette, 12 bunches ..	1	6		3	0
Carnations, Malmaison, 12 blooms	3	0		6	0	Mimosa or Acacia (French) per bunch	1	6		2	0
Cineraria, dozen bunches ..	6	0		9	0	Narciss (various), Scilly dozen bunches	2	0		4	0
Cyclamen, dozen blooms ..	0	3		0	6	Pelargoniums, 12 bunches	6	0		9	0
Daffodils (double), dozen bunches	2	0		4	0	" scarlet, 12 bunches ..	4	0		6	0
Daffodils (single), doz. bnch.	3	0		6	0	Primula (double) 12 sprays	0	6		0	9
Eucharis, dozen	4	0		6	0	Roses (indoor), dozen ..	1	6		3	0
Enphorbia jacquiniæflora dozen sprays	2	0		3	0	" Red, per doz. blooms ..	3	0		6	0
Freesia, dozen bunches ..	2	0		4	0	" Tea, white, dozen ..	1	0		3	0
Gardenias, per dozen ..	3	0		6	0	" Yellow, dozen	2	0		6	0
Hyacinths, dozen spikes ..	3	0		4	0	Tuberose, 12 blooms ..	1	0		2	0
" Dutch, per box ..	1	6		4	0	Tulips, dozen blooms ..	0	6		1	0
Lilium longiflorum 12 blooms	3	0		6	0	White Lilac (French) per bunch	4	0		5	0
Lilium (various) dozen blooms	1	6		3	0	Violet Parme, French belis.	2	0		3	0
Lily of the Valley, dozen sprays	0	6		0	10	" small bunches ..	1	6		2	0
						" English, doz. bunch.	1	0		1	6
						Wallflowers, dozen bunches	2	0		4	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Genista, per dozen	6	0	to	10	0
Arum Lilies, per dozen ..	9	0		12	0	Hyacinths, per dozen ..	6	0		9	0
Azalea, per plant ..	2	0		3	0	Lily of the Valley, per pot	1	0		1	6
Cineraria, per dozen ..	6	0		9	0	Lycopodiums, per dozen ..	3	0		4	0
Cyclamen, per dozen ..	9	0		12	0	Marguerite Daisy, dozen ..	6	0		12	0
Daffodils, per dozen ..	9	0		12	0	Mignonette, per dozen ..	6	0		12	0
Dracæna terminalis, dozen	14	0		42	0	Musk, per dozen	4	0		6	0
" viridis, dozen ..	12	0		24	0	Myrtles, dozen	6	0		9	0
Erica various, per dozen ..	12	0		24	0	Palms, in var., each	1	0		15	0
" Willmoreana, dozen	12	0		18	0	" (specimens)	21	0		63	0
Euonymus, var., dozen ..	6	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
Evergreens, in var., dozen	6	0		24	0	" per dozen	9	0		18	0
Ferns, in variety, dozen ..	4	0		18	0	Rhodanthes, per dozen ..	6	0		8	0
Ficus elastica, each ..	1	6		7	0	Spiræa, per dozen	8	0		12	0
Foliage plants, var., each	2	0		10	0	Tulips, dozen pots	6	0		8	0

Bedding Plants in variety in pots and in boxes.



TURN-OUT TIME.

MAY Day is a favourite time with many graziers for turning out cows and store cattle to grass, more from custom than anything else. The practice has little, if anything, to commend it to a thoughtful man, who knows that much harm and positive loss are often a result of its observance. Not many fixed rules are possible in the management of live stock; a very safe one is never to subject the animals to sudden changes. To turn cows out on pasture rich in the fresh herbage of spring, to suffer them to eat it to repletion, as they invariably do if unchecked, and at the

same time to discontinue the use of dry food altogether, is wrong. The effect upon most cows is so relaxing that scouring becomes general in the herd. Occasionally one or two eat so greedily that the stomach becomes packed with food which it cannot digest. Gas is then generated so freely that the stomach becomes distended to an abnormal degree, there is some fever and much pain, the intensity of which is evident from the uneasiness and moaning of the cow. It is easily relieved, but it is best to call in a veterinary surgeon as quickly as possible, for if inflammation sets in it is generally fatal.

Thus much only as a word of warning, especially to beginners, to show something of the risk attendant upon extreme or sudden changes of diet. If instead of turning out the cows at a given time they are gradually prepared by having some green food placed in the yard racks, such as Rye, Italian Rye Grass, Trifolium incarnatum, or Lucerne, they are gradually brought to a changed diet, and eventually are allowed out altogether on pasture. When all the land is in pasture this cannot be managed so well, but even then if at first the cows are left out only for a short time, which is gradually lengthened, still keeping up rations of bran and crushed Oats at milking time, with hay in the racks at night, there will be very little trouble from scour. Upon the principle that a farm should be self-supporting, the use of bran has given way to that of crushed Oats very much; wholesome, sound, nourishing food, shelter, gentle kindly treatment, an avoidance of extreme or sudden changes all tending to keep up condition and a full yield of rich milk.

To harp once more upon an old string attention may be called to what a comprehensive term shelter is. It really comprises protection from everything at all calculated to prove injurious to cows or cattle. Not merely in winter when the stormy winds do blow is it required, but in summer when gad flies are rampant, fastening themselves upon cattle and sucking the blood till the animals become frantic with pain, rushing about so violently that cows especially suffer so much that there is frequently a serious falling off in the butter yield through the milk becoming poor. The remedy is the shelter of a well ventilated cow house or covered yard by day, with green food in racks, and turning out on pasture by night. Our readers have been told of young well-bred stock that never left the covered yard till sold to the butcher. This is the practice of some excellent farmers who look closely into every detail, and who consider that the quiet existence in the yards promotes early ripening, keeps on the calf flesh, and is altogether the most thrifty and economical method. Certainly the fortunate animals avoid the serious exposure to cold, wet, and heat, which is frequently so mischievous among cattle.

Where cows are kept in at all cleanliness must be insisted upon. Most lamentable is the condition of many a herd at turning out time, and this spring it is especially so. Many cows are not only low in condition, but have evidently been suffered to lie down on a bed of filth all the winter. They are turned out with their coats clogged with filth. Many of them are just mere bags of bones. The calves are weakly, and the udders so small that the milk yield must be very low indeed. This is no fanciful picture, it is a sketch from Nature of a herd visible as we write from the windows of a dairy farm where we are sojourning for the moment. They have been out on pasture all day—pasture so bare that hay has been taken and thrown about on it for them to eat; a most wasteful proceeding, as the traces of hay all over the pasture testify, yet such is the practice in the Midlands, where custom seems to rule to the exclusion of thought, or any attempt at improvement. No regular turn-out time is there here, for cow and store beasts are generally out all the winter. At this farm a certain number of cows are kept in at night, but as no straw is grown they run woefully short of litter for bedding; their wretched starveling appearance shows how short they have been kept of food too. Yet here, where Stilton cheese is the staple article of produce, there is every inducement to keep the

best cows and to feed them well. Nobly does the local cheese sustain its high price. Prosperous as are its makers, they might be much more so if only they had something better than a mere makeshift system of management. No effort appears to be made at improvement in any way; the head of stock kept is generally too large, hay-ricks run short, causing turn-out time to be eagerly looked for. Yet it has been so much anticipated that there can be very little real grazing till warmer nights come to promote free growth even in poverty stricken pasture.

WORK ON THE HOME FARM.

Never was the value of and necessity for deep open hovels in every meadow more apparent than on the morning of April 13th, when snow fell heavily for several hours, with a keen nor'-easter driving the snow flakes furiously across the land. Ill fared it then with calves and late lambs with nothing but a hedge for shelter—no hovels, no lambing fold. Men show by such insane exposure of delicate animals that they have not yet acquired even an elementary knowledge of their business. Our early lambs passed through this cold spell with impunity, as they are such fine sturdy animals that a few were sent to market for the Easter sale. Folding on Swedes is now coming to an end, and the Rye will be turned to at once. As usual this valuable green crop is ready in the very nick of time for ewes and lambs, which are now kept from the pastures, our aim being to reserve as much grass as possible for hay and silage. This spring a fine forward piece of Italian Rye Grass will be folded after the Rye, with a possible change to Sainfoin. This will depend upon the condition of the flock, which will pass over the whole of the Italian Rye Grass in folds without change if no symptoms of scouring occur; if they do there will be a prompt change to the Sainfoin.

Field Potatoes have been planted in a satisfactory manner, the soil working light and clean, the manure being applied easily and inexpensively, and the seed having one stout shoot on each tuber. As the soil was low in fertility a moderate quantity of nitrate of soda was mixed with the superphosphate and potash, no farmyard manure was used. This avoidance of manure carts makes a material difference in the expense of planting; it also tends to lighten labour subsequently, for there is no doubt that weed seeds are taken to the land by the manure cart. The Potato field had been thrown into ridges in the autumn, a couple of turns of the harrows broken down the ridges; the double-breasted plough was then set going to make furrows 30 inches apart, the manure was scattered along the bottom and sides of the furrows by hand, the seed laid in carefully so as not to break the shoots, another double-breasted plough following to split the new ridges and so close the furrows over the seed. Thus was the work done quickly and well, the soil being left lightly ridged over the seed, which being so buried rather deeply is less liable to have its growth cut by late frost than when more shallow planting is practised. In a wet spring the winter ridges are not broken down, the manure being sown, the seed placed along the furrows, and the old ridges then split. There is less labour this way, but with fine weather we prefer stirring the soil beforehand.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1892.	April.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	10	29.977	54.3	47.3	N.E.	47.0	67.4	38.9	105.4	31.9	—
Monday ..	11	29.955	48.4	43.0	N.E.	47.9	67.7	36.0	105.6	28.2	—
Tuesday ..	12	29.946	42.2	39.0	N.E.	47.9	50.9	34.1	96.8	26.7	0.020
Wednesday	13	29.674	37.6	36.6	N.E.	46.2	41.3	36.7	79.7	28.7	0.178
Thursday ..	14	29.712	40.0	36.1	N.E.	44.0	47.3	28.3	94.8	21.9	—
Friday ..	15	29.773	33.6	32.3	N.E.	43.2	48.7	28.6	79.9	21.8	0.204
Saturday ..	16	29.504	35.6	34.7	N.	42.3	44.2	32.3	68.6	31.2	—
		29.792	41.7	38.4		45.5	52.5	33.6	90.1	27.2	0.402

REMARKS.

10th.—Almost cloudless throughout.
 11th.—Brilliant throughout.
 12th.—Overcast almost all day; cold night.
 13th.—Overcast early; wet snow and rain from 7 A.M. to 9 A.M., and then almost incessant rain till about 6 P.M.; fair night.
 14th.—Brilliant early, and almost unbroken sunshine throughout, except from 11.30 A.M. to 1 P.M., when there was frequent slight snow and a little cloud.
 15th.—High smoke fog all day, and slightly foggy below.
 16th.—Snow from 5 A.M. to 9 A.M., roof and trees white; overcast morning, fair afternoon and evening.

Wintry and cold except for the first two days, with rather sharp frosts in the second half. The marked contrast to the preceding week is shown by the following values:—

Week ending Saturday	9th	Average temp. at 9 A.M.		Average Max.	Average Min.
			
Week ending Saturday	9th	.....	53.0°	69.0°	39.6°
"	16th	.....	41.7°	52.5°	33.6°
"	Difference	.....	11.3°	16.5°	6.0°

—G. J. SYMONS.



BY whatever agency a wider interest is created in gardens and the cultivation of plants or fruits the results must be advantageous, and the greater the number of new recruits the stronger must be the army of horticulturists. Special societies for promoting the cultivation of different plants have concentrated attention on them and gained new patrons. Provincial horticultural societies have stimulated local interest, and numbers of persons have been induced to share in the pursuit of gardening in a large or small degree who, but for the attractive forces provided, would have remained outside the pale within which they have enjoyed new pleasures. Having regard, then, to the good influences exerted by the various agencies of the nature indicated, we cannot share in the somewhat pedantic views which some good friends appear to entertain, that only certain so-called scientific societies should be deemed worthy of ungrudging support, while a sort of half-hearted cautiously qualified recognition of efforts made beyond them is held to be sufficient. Let all the honour that is due to our great institutions be most fully accorded, but also let whatever good that can be done in other ways have at least a fair and reasonable share of encouragement.

Kew, with its unique resources and world-wide connections, has conferred enormous benefits in the development of colonial industries, and has also been the means of inducing thousands who have inspected its treasures to become ardent supporters of gardening at home. The Royal Horticultural Society has, without doubt, been of great service to the art in which it holds the high position of being the national exponent; but with all its ancient traditions and well-meant modern methods it can only exert direct influence on a mere fringe of the population. The parks and gardens so wisely provided around the metropolis and other cities, and generally well managed, have done more than can be easily appreciated in moulding the tastes of the multitude, and impelling thousands of persons of various grades to improve their home surroundings. It is by taking all these agencies together, each working in accordance with its means and within its possibilities, that gardening has been popularised to an extent that could not have been accomplished by a necessarily limited number of scientific institutions alone. Even in Belgium, which has been described as a nation of horticulturists, that reputation would never have been established by the influence of strictly horticultural societies, and it was only by an alliance of music with flowers, and when "halls of harmony" also became on appropriate occasions halls of horticulture, that adequate support was forthcoming, and both arts strengthened. The amalgamation has been satisfactory, and the alliance is generally considered a happy one.

In London we expect to find a similar alliance in the International Horticultural Exhibition that will open at Earl's Court, Kensington, on the 7th of May. The best produce of gardens is expected to be displayed there from time to time, while all the time the representative gardens of different nations and periods will form a feature of a most diversified kind. Such an undertaking as that on which Mr. Milner is engaged has never been attempted before, and judging by the preparations, also the thought and skill displayed in the work, the result will be a surprise to many at the completeness of the scheme. Yet these gardens in quaint designs, peculiar forms of embellishment, and appropriate plants would not

in themselves induce the throngs of visitors who it is hoped will see them without the charms of music to attract them there. There cannot be a doubt that during the season an infinitely greater number of persons will be impressed by what they see in connection with gardening than would be possible at ordinary shows exclusively horticultural. The endeavour of the promoters of this great undertaking is plainly to combine pleasure with instruction, and especially to represent gardens and everything connected with them in the most comprehensive manner that is possible, and with the resources at command a great effect will be realised.

During recent years a greater disposition has been apparent on the part of the community to seek relaxation from their daily occupations in the open air than formerly prevailed. The change of habit which is being steadily accomplished is altogether desirable, and, than promenades through well-furnished grounds and a differently designed and embellished garden at almost every turn, nothing more agreeable could well be imagined. In one place we have the curious little Japanese garden, so daintily different from our ideas of the beautiful; then we pass along and find an Indian Tea garden, in which the shrubs are to be grown, the leaves gathered, dried, and brewed, or tea had direct from the garden to the pot. Following the curving walk we note a Tudor mansion and garden, intended to be as true to Nature and Art as are producible. Then the Roman garden commands attention, with its terraces and statuary as Pliny described about 1800 years ago; and, as if that did not take the mind back far enough, a garden of the Pharaohs is provided to evoke feelings of wonder, and afford a glimpse of the taste that prevailed in far past ages. Then, to come nearer home, we have English gardens of the Jacobean and Georgian eras, while, as Mr. Milner says, "we have our Victorian age amply represented—not in a special garden to itself, but in the thousand and one evidences of floral beauty scattered over the Exhibition generally." Altogether most interesting will be this congeries of gardens, and they, with other attractions, can scarcely fail to attract persons from all parts of the kingdom, as well as visitors to our shores.

Before reaching any of the gardens referred to a great deal will be seen. The Great Promenade, with its fountains, will be flanked by statuary, various works of art, and plants. Side halls to the right and left will be adorned as picture galleries, the subjects being generally representative of horticulture. The main avenue leads to a handsome tropical garden, picturesquely designed, in which towering Tree Ferns and Palms are prominent, and the different beds will be kept attractive during the season by the horticulturists to whom they have been assigned. Messrs. Turner, Slough, and Williams, Holloway, were busy in the preparations, and it is evident that a beautiful tropical scene will be produced. The surroundings, not only of this garden but of the outside enclosure, are striking and appropriate, representing a fringe of trees, and in one part the Great Avenue of Windsor is depicted by Mr. Halley of Slough, who has been entrusted with all the work of this nature—a great undertaking ably carried out. In another part the fortress of Gibraltar stands boldly out, and with the coast vegetation is highly effective.

Mr. Milner, it must be said, is doing his work thoroughly and thoughtfully, as befits his name and reputation, to make a most attractive, instructive, and suggestive display; and we shall be glad if his prediction is fulfilled—namely, "That such an exhibition, embodying all that is known of the art of gardening, and possessing a formidable array of extra attractions, is doubtless destined to prove the greatest success of any exhibition of recent years." A share of the profits accruing from the horticultural exhibition are to be devoted to gardening charities.

The Wild West Show will be held on one side of the grounds, but the timid need not be afraid, as neither the buffaloes nor the redskins will be in the garden, and visitors need not go out of it to

see them unless they like ; but it is conceivable that most of them will become patrons of the strange scene, including, perhaps, just a few who object to anything whatever in association with horticultural exhibitions.

AURICULAS AT THE SOUTHERN SHOW.

It is amusing to hear the comments that are made by those who attend a show of this character. Here, for instance, is an optimist who says it is the best show the Society ever held, but then he never grew an Auricula in his life, although a lover of other flowers ; while, on the other hand, here is one who has grown them for a number of years, and who says there was hardly a really good truss of an Auricula in the Show ! but then he is a very rigid follower of the old order of things ; while a third says, I think this ought to be called the Society for the Encouragement of Forced Auriculas and Primulas ! It will be seen, then, that it is no easy thing to steer a safe course between so many conflicting opinions, and I hope I shall not "flutter the Volsians" when I say, that in my opinion, it was a very mediocre exhibition, and not to be compared with those which have been held of late years. Nor do I see how it could be otherwise ; indeed, one felt surprised that there were so many flowers staged. Two things conspired to this—the date of the show and the extreme coldness of the season. With a foot of snow on the 17th April and frost of varying intensity from 4° to 12° for a week, it was not possible that those growers who use no fire heat could have a chance of getting in except in a very low place. Taking my own collection as a sample, I could not have shown one truss ; but as I do not now exhibit this is not of much consequence to me, as I shall enjoy flowers next week just as well as I should have done this week.

The consequence of all this was that most of the flowers showed manifest signs of distress from their being rushed into bloom, the foliage in some cases being flaccid and thin, entirely lacking in that firmness which is so characteristic of the Auricula, and which makes a collection of plants, even when not in bloom, so pleasant to the eyes. Of the backwardness of the season there could be no better proof than the fact that the Rev. F. D. Horner, the champion grower of Auriculas, only exhibited in the class for two plants, where he obtained a fourth prize, and yet he applies heat ; but then he grows them so far north that even with that he had very few flowers. Then the Reading contingent was nothing to what it was last year ; and Mr. Henwood, though he made a gallant fight, was far below the standard he previously attained. In the classes for single Auriculas there was not the competition there ought to have been, and a number of very mediocre flowers obtained prizes, which in other years they would have failed to do.

The twelve plants with which Mr. Douglas obtained the first prize were, I think, as good as he ever showed, and were very striking in appearance, but he knows that this is not the style of truss that finds favour with old fogies, brought up like myself in the rigid and puritanical northern school. To me an Auricula with twelve pips is simply out of character. You can rarely get pips in this case to lie flat ; they are crimped or cupped, and besides, you do not see the correct character of the flowers. The older florists always mentioned that an edged Auricula should not have more than five, nor a self more than seven pips, and I do not think that they were far wrong, at any rate they were very jealous for the honour of the plant they loved. It was somewhat curious to see some very old flowers staged, such, for instance, as General Bolivar, an old grey edge, and one which, I think, nobody looking at could fail to recognise as one of the parents of George Lightbody. On saying this to Ben Simonite, he agreed with me, and said that he thought the other parent was Kent's Queen Victoria. This flower still retains, and I think will long retain, the position of being the best and most perfect flower grown, and yet we should like to see even it improved by a little more body colour. Magpie (Horner) maintains still the character I assigned to it last year as being the best seedling that Mr. Horner has raised. Selfs still maintain their pre-eminence ; Horner's Heroine, Barlow's Mrs. Potts, and Woodhead's Black Bess were all in the first prize collections, and are all additions to this most attractive—to the general public—class, and all appear to be good doers. Mrs. Potts is, perhaps, the most perfect flower of the three, but its stems and footstalks are so weak that the former needs a support, and the latter cause the pips to hang about in a loose manner, spoiling the symmetry of the truss. A small plant of John Simonite was shown, but very inferior to the fine one shown by Mr. Henwood last year.

With regard to seedlings, there is apparently some degree of confusion. Prizes are offered for the best, and one, a green edge, was awarded the first prize. It was named Commander, raised by

Mr. Horner, and was a flower of great promise. But I read in last week's Journal that several others obtained first-class certificates. Of these I know nothing, and was greatly surprised to see that they had been awarded. Surely it would be better that all seedlings should be grouped together, and that those which obtain the prize should also have the first-class certificate awarded ; not that I think it much matters, and it must be years before these plants come into commerce. Perhaps they never will, and even if they do they will be well nigh forgotten. The fate of seedling Auriculas is peculiar. Sometimes in flower they entirely belie the character of their youth, and as they advance become coarse and disagreeable ; at other times the constitution of the plant proves to be so indifferent that commercially it is utterly valueless, while in other cases it is so slow to give offsets that one's hair is apt to turn grey before we see any produce. If we could only get some first-rate greens that would break as freely as Traill's Beauty we should be pleased, but I think at the same time that great caution ought to be used in giving either prizes or certificates for seedlings. The one class in which we are especially in want of good flowers is the green edge, for beautiful although some of those we already possess are, there is something wanting in them all. Thus Colonel Taylor is sometimes angular, and the paste so thin that the body colour shows through. Then Prince of Greens, lovely as are its paste and edge, has a watery eye, which gives it a dull appearance. Imperator is foxy in colour ; and the Rev. F. D. Horner, in many respects a grand flower, has yet the demerit of not opening flat, and good constituted plants in this class will always be acceptable.

I should like to make one or two suggestions with regard to arrangements. In the first place I do not think that sufficient space is allowed in the single classes ; there ought to be space to allow, say, the best eight plants in each class to be taken out and ranged in line, and then when judged to be placed in the order in which the prizes are awarded. Now for this there was no convenience, and consequently it entailed both trouble and inconvenience to the judges. I think also that some better plan should be adopted for marking the ownership of these single classes than at present. If an exhibitor has a single green edge, for example, he has a card which is placed under the pot containing the plant, but when the judges have to remove the plant to compare it with others he has to move the card also. The case is worse where, as it often happens, the same exhibitor has two plants, and these are placed on the one card. Now could not all this be obviated if each exhibitor had a number printed on a green label, which he could place on each pot, this number to correspond with one against his name in the entry book ? The clerk would then simply have to mark against the name of the exhibitor the prize he has obtained, and so all confusion would be avoided. I think some arrangement of this kind, and the fixing of the date a week later, are matters which are well worthy the consideration of the Committee.—D., Deal.

WATERING TREES AND CROPS.

I do not remember so much watering ever being necessary out of doors during the months of March and April as has been required in our somewhat light soil during the last six or seven weeks. Newly planted trees and shrubs and freshly laid turf have had several waterings, as also have our Peach, Nectarine, Cherry, Apricot, and Green Gage Plum trees trained against walls. I am of opinion that wall trees annually suffer more from dryness at the roots than many persons are aware of, and to that cause may be attributed many of the unfavourable symptoms in such trees which we read of from time to time in the horticultural press.

Even during wet summers it is very rarely that trees growing against south, east, and west walls receive sufficient water at the roots from the skies to maintain them in a healthy growing state. This is easily accounted for. The 3 feet wide alley between the wall and border—which usually slopes outward and downward, and is cropped with French Beans, Lettuces, Strawberries, &c.—is almost as hard as the adjoining gravel walks, and has to be loosened on the surface with a digging fork before giving water. Moreover, the heat-conserving and moisture-absorbing nature of bricks and mortar tends to rob the roots of the trees of the moisture reaching the soil about them. The walls, too, very often prevent the trees growing against them from being benefited by rain. The foregoing remarks will amply show the necessity for giving copious supplies of water at the roots of wall trees occupying such positions as those indicated during the growing season. I generally water my Morello Cherries on north walls twice during the summer after the soil has been loosened, and a good surface dressing of short manure is then applied round the trees.

In order to secure the best results in the way of crops from kitchen garden and field plants the soil should be kept uniformly

moist about the roots during active growth—that is to say, during the months of May, June, July, and August. If Peas become unduly dry at the roots in summer they will become a prey to mildew, and their yield of produce will be poor in quality and short in duration. Cauliflower plants from the same cause will become “button hearted,” which means the production of worthless heads or “flowers;” and Lettuces, instead of developing into large solid heads of crisp and tender leaves, form thin loose heads of leathery leaves. Scarlet Runners, Dwarf Kidney and Broad Beans, also Spinach, are other crops which suffer materially if not kept moist at the roots during dry summer months.

The best time to water all kinds of plants, both in the kitchen and flower gardens, is late in the afternoon or in the cool of the evening, because then there is no powerful sun heat to dry up the water almost as soon as it touches the earth, as is generally the case when watering is done between the hours of ten in the morning and four o'clock in the afternoon during the summer months. It is better, however, to give a good watering once or twice a week, according as the soil is heavy or light, and to the character of the weather, so as to thoroughly moisten the soil, than to give it in dribblets every evening—that is to say, giving only sufficient to moisten the surface of the ground without touching the roots, a kind of allaying the dust watering.

The notion entertained by many people, to the effect that if plants out of doors are watered overhead in the heat of a summer's day the leaves get scorched by the action of the sun on them while damp, is a wrong one. Nature herself affords ample proof of the correctness of this assertion every summer, when the sun frequently shines forth with full power on the wet leaves of plants immediately after a smart shower of rain without in any way injuring them.—H. W. WARD, *Longford Castle, Salisbury.*



CHYSIS BRACTESCENS.

THIS little grown but beautiful Orchid has been well exhibited of late, and deserves to become better known than it is at present. It blooms with great freedom, and the flowers are exceedingly pleasing in appearance, being clear ivory-white with very few specks of colour. They are, moreover, highly perfumed. The species is a native of Mexico, and does well either in pots or baskets with abundance of warmth and moisture. This might be classed with several other kinds as worthy of general culture, but it is likely enough to remain neglected, for Orchid growing has run to a great extent into a few grooves.—T. H. G.

NEW HUNTING GROUNDS FOR ORCHIDS.

THE introduction of the magnificent *Cypripedium Chamberlainianum* from New Guinea will turn the eyes of Orchid hunters towards that as yet only half-explored land, and the proceedings of those who are gradually opening it up will be followed with a new interest. An eastern *Cypripedium* so free in bloom as dried specimens show the new species to be is a *rara avis* indeed, and Orchid lovers may not unreasonably hope that those who follow in the footsteps of the explorers will supplement it with other distinct and noble forms.—T. H. G.

ANGRÆCUM FASTUOSUM.

THE engraving, fig. 53, represents a comparatively new species of a genus of Orchids not very widely known, yet possessing many charms. The *Angræcums* differ somewhat widely in general appearance, and those who are familiar with them will recognise the distinctness of *A. fastuosum*. The racemes of flowers are freely borne, and the beautiful ivory-like appearance of the latter, with the delicious fragrance they possess, render the species eminently pleasing and attractive. The illustration clearly indicates the roundish oblong foliage, and the flowers with their slender spurs.

With the exception of a few species the *Angræculis* cannot be ranked among the really useful Orchids which everyone may grow—not from any great difficulties attending their culture, or from deficiency of interest, but because where the object is to provide a brilliant display in the Orchid house there are many others better suited for the purpose easily procurable, and requiring less heat than the majority of species constituting the genus under consideration. A marked uniformity of colour prevails in them; from pure white to creamy yellow is the extreme range of tints, and the charming elegance of some species with delicate flowers, long

slender spurs, and gracefully arching racemes, or the stateliness of the strong-growing forms with large flowers, can scarcely compensate for what appears to some as a defect. Possibly this is the reason we seldom find a good collection of the species in one garden, though a large number of forms are included in the genus, and many have been introduced to cultivation. In some of the largest collections there are not a dozen species, though the nurserymen of this country offer about twenty, and probably nearly thirty are now represented, some being extremely rare. It is seldom, however, that a collection of Orchids, even of moderate size, is without at least one or two representatives of the genus, and many more might be advantageously grown wherever there is sufficient accommodation for them.

The genus *Angræcum* was established in 1822 by Aubert du Petit Thouars, to include certain species of epiphytal Orchids found



FIG. 53.—ANGRÆCUM FASTUOSUM.

in East and West Tropical Africa, Madagascar, and the adjacent islands, and in a work published by that botanist several of the species now in cultivation were described. It was then believed that the geographical range of the genus was very limited, but species have since been found in Japan and the West Indies. Their headquarters are Western Tropical Africa, from Sierra Leone to the River Gaboon the opposite side of the great continent about Zanzibar, in Madagascar, the Comoro Islands, Bourbon, and Mauritius. They are essentially heat and moisture-loving Orchids, and with the exception of the Japanese *Angræcum falcatum* they need the warmest compartment of the structure devoted to such plants. Being epiphytal in habit the majority require to be grown in baskets or on blocks of wood; but those of vigorous habit, such as *A. eburneum* and *A. sesquipedale*, are usually grown in pots with abundance of potsherds as drainage, good fibrous peat and sphagnum, or the latter alone, that moss also being employed when the small forms are grown in baskets or on blocks. As with all Orchids of similar habit and from similar climates, abundance of water is required during growth, and a less amount when at rest; in other respects they may be treated like most of their allies.

FERTILISATION OF SWAN'S NECK ORCHIDS.

Mr. R. A. ROLFE writes that the economy of fertilisation in the Swan's Neck Orchids (*Cynoches*) is very interesting, and only from this standpoint can we hope to understand the great diversity between the sexes in the majority of the species. In both the lip is uppermost, and forms a kind of landing-stage on

which insects which visit the flowers alight. In all probability it is the insect's abdomen which comes in contact with the tip of the column, as the action can easily be imitated artificially. But in the case of the male flower a very curious mechanism comes into play. The stipes of the pollinium are tightly strained around the rostellum, but as soon as the sensitive filament is touched the pollinium is liberated and ejected from the flower by its own elasticity. During its short flight it not only straightens itself, but curls up into a spiral in the reverse direction, tightly clasping the anther-case, but leaving the viscid disc exposed, and this becomes tightly glued to the body of the insect. The pollen is now wrapped up in the anther-case, but the filament is hygrometric, and being exposed to the air it soon dries and straightens itself, when the anther-case, having served its purpose, falls away.

Meantime the insect will have visited other flowers, and if one of these is a female the pollen would come in contact with the viscid stigma, between its pair of fleshy wings, and thus fertilisation is effected. In the early morning these plants exhale a most powerful perfume, which serves to attract the insects. And now we may see the curious way in which the different structure of the male flower of the section *Heteranthæ* comes into play. In the section *Eucynoches* the lip of the male is ovate, fleshy, and immovable (as in the females of the entire genus), so that it is by the movements of the insect that its body comes into contact with the apex of the column. But in the flowers of section *Heteranthæ* the lip is reduced to a small round disc with radiating teeth, and instead of being immovable it is attached by a slender hinge. As soon as the insect alights its weight depresses the hinge, and its body comes in contact with the apex of the column with some force, invariably liberating the pollinium. It is marvellous how perfect all these adaptations are, and it has been a work of the greatest possible interest to me to trace their action and use.—(*Garden and Forest*.)

ONCIDIUM MARSHALLIANUM.

THE enclosed photograph represents a very fine spike of the above Orchid, 57 inches long, 38 wide, and bearing 186 blooms 2 inches deep and $1\frac{3}{4}$ broad. The flowers have been expanded during the past four weeks in the small but beautiful gardens of S. Symington, Esq., The Brooklands, Market Harborough. The plant is growing upon a piece of thin board on which it was imported about two years ago, from, I believe, the neighbourhood of the Panama Canal. Last year it bore a fine spike, but the present is much the finest. Mr. H. Dunkley, the able gardener, is well known in the Midlands as one of the most successful growers and exhibitors of Chrysanthemums, and judging from the short time Orchids have been cultivated at The Brooklands they will also be in the front ranks. A visit to The Brooklands is always a pleasure, one is welcomed so heartily by Mr. Symington, who is a thorough horticulturist, and is ably seconded by his gardener. At the time of my visit the houses were very gay with early flowering plants. In a cold frame the Chrysanthemums looked as if they would be ready to hold their own in the autumn.—JOHN GREGORY, *Haselbrook, Northampton*.

[Undoubtedly a very fine spike, but the photograph is not suitable for preparing an engraving.]

SIXTY YEARS OF HORTICULTURAL PROGRESS (1760—1820).

(Continued from page 20.)

THE weather of our islands seems to be a refreshing topic, which many people discuss day after day without any sense of weariness. A frequent matter of debate is, whether the winters were formerly colder and longer than at present. There is, I should say, little doubt that they were, when much of land of Britain was forest and marsh. Even as recently as a hundred years ago, sundry statements we read tell of very sharp winters; and gardeners in the reign of George III. seem frequently to have been sufferers by frosts and cold winds. One thing to be remembered, however, is that their methods of protecting plants of tender habit during the winter were imperfect. It was a usual plan to shield many things in the open ground with mats or other coverings which ought to have been placed in houses, such screens often failing to fulfil their object. Then plants were also frequently put into frames heated by manure, the temperature of which was not tested by a thermometer, so at times they were too hot, and then, perhaps, suddenly cooled by the admission of the outer air. Hence someone contrived as a remedy the "adjusting bottomed frame," which was deep, and had a bottom made of perforated boards, the pots or plants being raised or lowered at pleasure by means of a pinion and screw. In order to cool the plants, if needful, they were brought

nearer to the glass. One difficulty with this was the regulation of the moisture, and an improvement upon it was made by John Nairn; but it was more expensive, having a brickwork basement, an apparatus for shifting which was more readily adjusted, and, discarding dung and bark, he heated it by tubes which carried steam round the outside. M'Phail's frame was another improvement which many gardeners adopted about the end of last century, as the heat it yielded was equable with proper management. Warmth was supplied by dung, perforated flues being constructed in the basement, the steam from which heated the earth in the centre of each light.

Thomas Hill, alias "Didymus Mountain," writing on gardening about 1560, describes flower pots of earthenware as well known then. It would seem the common pot then used widened instead of narrowing towards the bottom, and they had probably slits in the sides to admit or reject water. Such pots, under the name of Chinese pots, were still patronised by some in the reign of George III.; also a French make, in which, instead of a central hole, the bottom was pierced with several fine holes; but these were constantly getting clogged, and did not obtain any more favour than the square flower pot introduced from Paris, which was supposed to economise space on stands and shelves. Another article that was introduced from Italy was the propagating pot, of tinned iron or earthenware; this was hung upon a branch, and a shoot of some tree or shrub placed in the slit along the side of the pot. It was said to be a Chinese plan originally, and used for propagating Camellias, Banksias, &c. The Georgian gardeners were very willing to adopt improvements suggested by their continental neighbours, such as the Italian watering pot, of earthenware instead of metal, supposed to avoid any contamination of the water; and a French one, provided with a zig-zag spout, by which the force of the flow was lessened, while the rose was discarded.

I must say a good word here for the sometimes calumniated monarch, George III.; he was friendly to horticulture, and did more than a little to help it forward, though the wars in which he engaged had an evil influence. Amongst other things to his credit was his employment of a man named Masson, who went at his expense on several voyages to Africa, and amongst the new plants he brought home were a number of Heaths. Miller knew very few sorts, and none of the Cape species; but more than 250 Heaths are reckoned to have been introduced by the end of that century. At first, however, there was a prejudice against them, from the idea that their culture was difficult. It seems that nurserymen frequently kept them at too high a temperature, and failed to keep them regularly watered; also, they used peat earth without a due admixture of sand. These mistakes were rectified, and the best method of propagating Heaths pointed out from experiments made at Hammersmith Nursery. There they tried the plan of taking off the tips of the fresh shoots in June, and planted them in white sand; before that it was customary to take large cuttings from the ripened wood. Seeds were often sent from the Cape, which, reaching England in winter, were sown by gardeners during the spring; but Cushing advised sowing in September, because spring seedlings seemed to bear the winter badly. American peat earth shrubs—as for instance the Magnolia, Azalea, Andromeda, and Rhododendron—were at this time coming prominently into notice. A very successful cultivator was Thomas Jenkins. His ground, of about 18 acres, now forms the Inner Circle of the Regent's Park, a good part of it being appropriately occupied by the gardens of the Royal Botanic Society. Abercrombie and others showed how important it was to imitate closely the American peat by an artificial composition suited to their habits, and they recommended increasing these plants by grafting or inarching, as being more expeditious than layering or growing from seed. American shrubs now began to be arranged in gardens by themselves at Caen Wood, Hampstead, and elsewhere. Rhododendrons and Azaleas were planted in thin lines, along the edge of copses, under shelter of trees, and it was found that they shed their seeds readily, and young plants sprung up without any particular attention being given.

In 1786 the first seeds of the white variety of Beet, now largely grown under the name of Mangolds, were sent to England by Mr. B. Parkins. For a long time it continued to bear the full German name of *Mangel-wurzel*. Sir Richard Jebb, who received them, placed them before the Society of Arts, and so they were distributed amongst some London gardeners. But Sir W. Jerningham and Sir M. Martin, of the county of Norfolk, were pioneers in its cultivation on an extensive scale. Dr. Lettsom, who had a physic garden and arboretum at Camberwell, wrote a small pamphlet in its commendation. There was a movement about 1787 for the increased cultivation of the Jerusalem Artichoke, it having been much commended as a vegetable, though we are told that the average Londoner regarded this with dislike. Mr. Bartley showed that this vegetable multiplied fast, and that it would

thrive in almost any soil, therefore might well fill up waste patches in fields or odd corners in gardens. Dr. Lettsom chronicled the fact that in 1790 few gardeners near London grew Seakale, though easy to cultivate and very productive. But only about thirty years before a bundle sent to Covent Garden, which had lost its label, was actually put aside as an unknown plant. Up to 1790 only two kinds of Celery—one red, one white—were cultivated in England, several others came in soon after that date from Italy or Spain. About 1781 the Swede is stated to have been brought from Gottenburg by a Scotchman named Knox, and its hardiness was soon appreciated, also the excellence of its tops. It was about this time that there was a great prevalence of the malady called ambury, or "fingers and toes," amongst the Turnip crops, and a misapprehension existed that this was the work of an insect, though really caused by poverty of the soil. The Parsnip was a vegetable regarded with disfavour through the greater part of the reign of George III.—J. R. S. C.

THE POINSETTIA.

THE time of year has arrived when preparations must be made for insuring a display of this valuable decorative plant in due season, and as I have cultivated Poinsettias for several years a few details of my practice may possibly be useful to some readers. The Poinsettia belongs to the natural order Euphorbiaceæ. It was introduced from Mexico in 1834, and named in honour of M. Poinsette, a French botanist.

Poinsettias may be fairly described as the most brilliant of winter decorative plants, yet we do not find them grown so well as they deserve to be. During their growing period we sometimes find them crowded amongst stove or greenhouse plants, and the foliage then is sure to fail, except a few leaves on the top of the plant. It is almost needless for me to say that this is not the proper way to grow Poinsettias. Foliage to the base of the stems represents good cultivation.

There are two methods of growing these plants—namely, (1) according to cool treatment, and (2) providing a high temperature. I have tried both, and give my vote in favour of the former. When grown cool the plants do not become so tall, the wood ripens better, and they produce finer bracts than under the other conditions. I do not say they cannot be grown in more heat, because they can, but it requires a very skilful cultivator to produce equally satisfactory results.

Poinsettias are easily propagated by cuttings taken from the old plants. This should be done as early in the year as possible, as more time is then afforded for ripening the wood. After the cuttings have been taken insert them in a small pot with no crocks in it, and only a little rough leaf soil at the bottom. Use good sandy soil, in fact they will strike very well in sand alone. After insertion give them a gentle yet good watering, and place them in the propagating pit, or in a close frame in the stove, where they will soon root. When they have rooted take them out of the frame, and leave them in the house for a few days, when they will be ready to be potted off in large 60's. The compost for this potting should be three parts loam, and one of leaf soil and sand. When potted they should be placed on a shelf close to the glass in a temperature of 65° to 70°, and well syringed on bright days.

As soon as the pots are filled with roots they should be transferred to their final pots—viz., 48's and 32's, using a compost of two-thirds loam and one-third of leaf soil, cow manure, and sand, with a dash of soot. In these pots they will make useful plants for general decorative purposes. When potted they should go back into the same temperature for a few days till they are well established, and then they should be taken to a frame where they can be placed close to the glass to keep them dwarf. They should be gradually hardened until they can stand in the open frame day and night, but during very bright days it is best to shade them from the hot sun, as they are apt to have their leaves scorched. When the days are shortening and the cold nights come on the lights had better be put on, and kept on during dull sunless days, only being taken off during bright sunny weather. During the whole of their growing period they must not suffer by want of water, for no plants will show ill treatment in this respect more clearly than the Poinsettias. They should be encouraged with weak liquid manure, a dose of fish manure, or Clay's fertiliser.

As the season advances and frosts are likely to occur it will be safer to take the plants from the frame and put them in a house with a temperature of about 45° to 50° at night. Keep them well syringed, and after a time the bracts will begin to show. During the growing period perhaps some of them will evince a desire to

grow too tall for general purposes; when this is the case I have seen the following plan used with a fair amount of success—Cut them half way through, about 4 or 5 inches from the top, and leave them for a few days until they have callused, when they should be severed from the plant, and placed in small 60's in a propagating pit. After a short time pot them into 48's; they will form sturdy plants.

When the plants are in flower they enliven the stove with their brightly coloured bracts, and for Christmas decoration in churches and houses they cannot be excelled. It is true they look stiff, but that can be remedied by tying a piece of black cotton to the bract, gently pulling it down and tying it to the stem. When the plants are in bloom care should be taken to select the best to save for propagation.

There is a white one, a variety of *P. pulcherrima*, but it is more a novelty than anything, and there is also a double variety named *P. pulcherrima plenissima*.—H. K.

ORNAMENTAL GRASSES.

THESE deserve to be much more extensively grown than they are at present, considering that they are so well adapted for decorative work of many kinds, and for imparting lightness to bedding arrangements. Many of our common field Grasses are well adapted for mixing with cut flowers, but they cannot easily be obtained during the latter part of the summer, and, moreover, they do not possess so much variety in form and habit of growth as do many of the continental kinds, seed of which may be obtained very cheaply from British seedsmen.

These fine Grasses may be cultivated in a variety of ways. Patches sown at intervals in mixed borders give but little trouble, and are very effective. Where wanted solely for cutting purposes it is best to devote a border or strip of ground in the reserve garden entirely to them, in which case they may be sown in rows 1 foot apart. In our own case we prefer to forward them by sowing in a rough frame covered with old lights, and eventually to transplant them in clumps to the many positions where they are required, because, on account of the space being at present filled with spring flowering plants, sowing in their permanent positions is not practicable. Many of the medium and tall growers are well suited for growing in pots for room decoration. For this purpose they should be sown thinly in the pots they are to occupy throughout the season.

For whatever purpose they are required it is necessary to have some knowledge of the height the various kinds attain. I will therefore select some of the most useful among them, give a brief description, and note the height to which they grow. From the present time to the second week in May is a capital period during which to sow.

Agrostis laxiflora, *A. nebulosa* (Cloud Grass), and *A. pulchella* are light feathery kinds, the first-named growing to a height of 1 foot, the second 18 inches, and the last-named 9 inches. *Anthoxanthum gracile* is useful for arranging with flowers in glasses, and is much employed for winter bouquets. *Briza geniculata* (Spreading Quaking Grass), 1 foot; *B. minor* (Small Quaking Grass), 9 inches; and *B. maxima* (Large Quaking Grass), 1 foot, are well known Grasses, and are particularly useful for the many purposes already pointed out. Their panicles of drooping, oblong flowers are both peculiar and attractive.

Bromus brizæformis, 2 feet, is a handsome biennial Grass of drooping habit. The flowers are produced in panicles somewhat similar to those of the *Brizas*. *Coix lachryma* (Job's Tears) 2 feet, is a half-hardy annual, especially useful for arranging in large trumpet-shaped glasses. *Eragrostis elegans*, 1 foot, is light and feathery in appearance. *Hordeum jubatum* (bearded) Squirrel-tail, 2 feet, thrives in any poor soil, and, as it belongs to the same genus as the Barley grown for agricultural purposes, which it greatly resembles in habit of growth, readers will at once recognise it to be of much decorative value. *Lagurus ovatus* (Hare's-tail) 1 foot, is one of the most striking of Grasses for growing in clumps, its ovate spikes of woolly flowers being distinct and beautiful. *Paspalum elegans* and *Pennisetum longistylum* grow 18 inches high. The latter is very elegant and effective, being well adapted for clumps. *Stipa pennata* also grows 18 inches high. The graceful stems of this beautiful Grass are feathered more than half their length, and are much used in a dried state. Few Grasses are more generally admired.

Wherever cut flowers are in great demand a collection of Grasses, including those enumerated, should be grown annually, as a very small amount of labour and expense is involved in their culture, and there are few plants more thoroughly useful, interesting, and beautiful.—H. DUNKIN.



EVENTS OF THE WEEK.—Shows are not numerous as yet. Committee meetings of the Royal Horticultural Society are to be held on Tuesday, May 3rd, and on the same day the early summer Show of the Eastbourne Horticultural Society will open, continuing on Wednesday. Messrs. Protheroe & Morris announce several important Orchid sales. On Friday, April 27th, they will offer a consignment of Messrs. Linden's new *Cattleya Alexandræ*, also *Cattleya Rex* and other Orchids, at their Cheapside rooms. The collection of Orchids at Stand Hall, Whitefield, near Manchester, the residence of the late T. Statter, Esq., will be offered for sale, without reserve, on May 3rd; and on the same day the collection formed by E. Barnett, Esq., Kenton Court, Sunbury, will be disposed of at 67 and 68, Cheapside.

— **THE WEATHER IN LONDON.**—The milder weather that was recorded on the eve of going to press last week continued for several days, and the night temperature usually remained above freezing point. There were occasional not unwelcome showers on Monday and Tuesday in this week, and to-day (Wednesday) the weather is warm, but inclined to be showery, and the wind is in the west.

— **WEATHER IN THE NORTH.**—On the mornings of the 18th and 19th 8° of frost were registered. Since then till this morning there has been no frost, the thermometer standing last night at 34°. Very cold west wind, high and piercing, has prevailed, and the occasional slight showers have done little or no good. Gardens and pastures stand very much in need of rain. Very little advance in vegetation has been made for a month.—B. D., *S. Perthshire*.

— **GARDENERS' ORPHAN FUND.**—Those interested in this admirable institution should note that the date of the annual dinner, which is to be held at the Hôtel Métropole, near Charing Cross, has been fixed for May 17th. It will be a source of much gratification to its supporters to know that Sir James Whitehead, Bart., will preside.

— **AURICULAS IN 1892.**—Auricula growers who were present at the luncheon following last week's Exhibition must have smiled grimly at the Chairman's description of the Show as the best ever held. In quality the flowers were worse than I have seen them for many years. They were rough, coarse, and unfinished. There was not, so to say, any polish whatever about them. Mr. Henwood, in particular, fell lamentably short of his display last year. It is to be hoped that next season will show a great improvement.—A. B.

— **UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The report and balance-sheet of this admirable Society for 1891 have just been issued. As details of its financial position were given in the report of the annual meeting a few weeks ago it is unnecessary to repeat them, but it may be noted that they are of a character to inspire the utmost confidence. Notwithstanding this, and the benefits accruing from membership, the number of members only amounts to a little over 400. The Society is worthy of more support from gardeners. The address of the Secretary, Mr. Collins, is 9, Martindale Road, Balham, London, S.W.

— **ROTATION OF CROPS.**—I note the point raised in the discussion on the paper read by Mr. Townshend, and referred to on page 296, that land manured for Potatoes, with winter members of the Brassica tribe planted between, would prove a failure. I fear this will not be accepted, because as a rule the land for Potatoes is manured in the autumn—at least, heavy land. In this case the theory that the supernumerary green crops would be a failure would not hold good. I fancy that there are but few gardens in which this plan of intercropping can be dispensed with. Surely the roots of such plants as Brussels Sprouts travel further than between the rows of Potatoes unless these latter are planted extra wide. I think we gardeners are apt to be too stereotyped in our ideas of rotation in cropping. For the last ten years I have grown Brussels Sprouts, Kales, Savoys, Cauliflowers, and Broccoli on the same plot of ground, and with good results; yet we do not crop in this manner from choice, but from sheer necessity.—E. M.

— **DEATH OF MR. THOMAS GREEN.**—The fame of Mr. Thomas Green of Leeds in connection with lawn mowers has long been established. Mr. Green, we regret to announce, died on the 19th inst., at the advanced age of eighty-one years. He commenced business in a small way as a wire worker, and by diligence, industry, and good judgment became the head of a firm of world-wide reputation.

— **VERSAILLES NATIONAL SCHOOL OF HORTICULTURE.**—The directorship of this school, left vacant by the death of M. Hardy, has been offered to M. Nanot.

— **SHOWS OF THE PRESENT SEASON.**—The Shows of the present season have commenced, and in order to make announcements of Exhibitions throughout the season in due time we shall be glad if secretaries will supply dates and schedules as early as possible.

— **YORK FLORISTS' SOCIETY.**—The first of the Shows arranged by the Ancient Society of York Florists was held last week. The Hyacinths were a notable feature, but Auriculas and Polyanthus were poorly represented, owing to the lateness of the season. Mr. J. T. Hingston exhibited a good collection.

— **BRIGHTON AND SUSSEX NEW HORTICULTURAL AND MUTUAL IMPROVEMENT SOCIETY.**—Sussex readers will be interested to know that at the ordinary monthly meeting of the above Society, held on the 21st inst. (postponed from the 14th) it was announced that their first spring Show had resulted in a balance of £40 in favour of the Society, and that thirteen new members were admitted.—R. I.

— **GARDENING APPOINTMENTS.**—Mr. A. Allan, late of Trentham Gardens, has been appointed head gardener to Lord Hillingdon, Hillingdon Court, Uxbridge. The following appointments have been made through Messrs. John Laing & Son, Forest Hill Nurseries, London, S.E.:—Mr. C. Rogerson, from Euston Hall, Thetford, as head gardener to G. W. Jude, Esq., The Laurels, Watlington, Kent. Mr. A. Bogie, as head gardener to Thos. Taylor, Esq., The Cedars, Newport Pagnell.

— **SPRING FLOWERS IN FINSBURY PARK.**—The few warm sunny days which characterised the end of last week made a marked improvement in the spring flowers in Finsbury Park. Hyacinths and Daffodils are now making a fine display, and in a few days the Tulips will be in full bloom. Considering the extreme changes in temperature which have prevailed this month, the whole of the spring flowers and vegetation generally in this favourite northern lung of London are looking exceedingly well.

— **FREESIAS.**—Mr. G. Parrant is in doubt as to whether "D., Deal," refers to him or not on page 299. He, however, says his object in flowering the plants in a temperature of 55° to 60° is to have the greatest possible number of flowers expanded at once, rather than a more scattered display on dwarfier plants. Continuing he desires to say that he means by a spike the flower stem and branchlets, and it is not unusual to have twenty-six or twenty-seven flowers from a bulb. Mr. Parrant thinks "D., Deal," might have been a little more explicit in his references.

— **TRENTHAM SHOW.**—The fifth annual Exhibition of the Trentham and Hanford Horticultural Society is fixed for Thursday, July 21st, and is to be held in Trentham Gardens. A glance through the schedule shows that the prizes are quite out of the common. No less than £62 is offered for a group, being divided into four prizes of £25, £16, £12, and £9. For forty-eight Roses £19 is offered, the first prize being £11 10s. in value, the second £5, and the third £3. For a collection of fruit £10, £6, and £3 are offered. The minor prizes are also well worth winning, and the schedule is a very comprehensive one. The Hon. Secretaries are Messrs. J. Taylor and E. W. Culverwell, Trentham.

— **GARRYA ELLIPTICA.**—When looking round the gardens at Tredegar Park, Newport, I noticed this shrub (now much neglected by planters) trained to an east wall near the mansion. Mr. Roderick told me the shrub produced its catkins yearly in great profusion, 8 to 9 inches long. When the catkins are expanded it presents an interesting appearance. It is worth growing as a shrub in the open or trained on a wall, not only for variety sake but for its unique appearance. It does well in a mixture of fibrous loam and burnt refuse, annually top-dressed with leaf soil. I have seen beautiful specimens that have been treated as indicated.—JOHN CHINNEY.

— **INTERNATIONAL HORTICULTURAL EXHIBITION, EARL'S COURT.**—We are desired to say that one of the most attractive features at this Exhibition, which opens on May 7th, will be the so-called "Insectivorous House," where plants which prey upon insects will be exhibited. This house is being constructed by Messrs. Crompton & Fawkes of Chelmsford, and will be well adapted for the purpose for which it is designed.

— **BORONIA HETEROPHYLLA.**—In comparing this with *B. megastigma* it is not uncommon to be divided by conflicting preferences. The eye pleads for the former, the nose for the latter. *B. heterophylla* is a really beautiful plant, its richly coloured bells producing a delightful effect; the perfume, however, is very faint compared with that of *B. megastigma*.—F.

— **LEUCOIUM VERNUM.**—The Spring Snowflake is a gem for the border or rockwork, coming into flower after the other members of the Snowdrop family are past their best. The green spot on the tips of the segments is noteworthy in this variety. A clump of it growing at the base of a specimen of *Libocedrus decurrens* has flowered annually for the last ten years, which shows its adaptability to positions not generally considered the best for its welfare. —E. M.

— **"THE FRUIT GROWER'S GUIDE."**—I should like to add my mite of praise to the opinions published on page 300 as to the value of this work, not only to "probationers" but to the bulk of gardeners, any of whom I doubt not will be able to gather some information from its pages. The manner in which it is written and illustrated is so explicit that the work appears to me to be just the thing that has been wanted for a long time. I know of no other work which deals in so full a manner with fruit of various kinds.—EDWIN MOLYNEUX, *Swanmore Park, Bishop's Waltham.*

— **ROYAL METEOROLOGICAL SOCIETY.**—The usual monthly meeting of this Society was held on the 20th inst., Dr. C. Theodore Williams, President, in the chair. Reference was made to the death of Dr. J. W. Tripe, who had held the office of Council Secretary for the last twenty years, and a resolution of sympathy with the family was passed by the meeting. Senor R. Aguilar y Santillan, Sir Andrew Clark, Bart., F.R.S., Mr. F. W. Cross, Assoc.M.Inst.C.E., Mr. H. Hancock, M.A., Mr. W. Haberdon, Dr. Hermann Weber, and Mr. E. R. Williams were elected Fellows of the Society.

— **HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY.**—The schedule of the ninth Show of this Society, which is to be held on November 16th and 17th, has been issued. It is of the usual comprehensive character; £10 and a silver cup value £5 5s., are offered as first prize for twenty-four incurved blooms, and the same for twenty-four Japanese; £3 and the N.C.S. silver medal are offered as first prize for the best table illustrating the decorative value of Chrysanthemums. Prizes of £6, £5, £4, and £2 are offered for groups in one class. Amateurs', ladies', and children's classes are also provided.

— **WINTERING CAULIFLOWERS.**—It is now conceded that in all private gardens the introduction of the very dwarf Cauliflowers of the Snowball type has generally discounted the old practice of sowing seed of the Early London in the autumn and wintering the plants in frames or under handlights. Seed of the dwarf early forms sown in January now give plants which if put out on to warm borders about the middle of April, turn in rapidly, and give an abundance of medium sized succulent heads very early. This is far better than being burdened with the care of plants all the winter. These early varieties, however, are not regarded as large enough for market purposes, for trade growers are not content unless they get heads fully 9 to 10 inches across, and probably it would hardly pay to send small samples to market, as the competition is so formidable. To secure really fine heads, therefore, it is the rule, as I have seen on Mr. W. Poupart's farm at Twickenham, to plant in clumps on broad rounded ridges of soil during October from breadths sown at the end of August. The lines of clumps are some 5 feet apart, because the centres are quite early in the summer utilised as trenches for Celery, the ground being previously heavily manured for that purpose. The clumps in the rows come at about 3 feet apart, six plants being put out in a circle to each clump. These are then covered with cloches, and are kept so covered closely all the winter. The plants seem to suffer little or nothing during hard weather. The glasses are finally taken off from the plants about the middle of April, and may

then be put to other uses. Presently each clump is thinned down to four plants, and during dry weather watered with sewage liquid; then, later, the soil is well stirred and the stems earthed up to keep them rigid. Succession crops are easily secured by sowing seed in frames in February for planting out in April to furnish heads in July.—A. D.

— **FRUIT CONFERENCES AT NEWCASTLE.**—A correspondent informs us that the meetings under the auspices of the British Fruit Growers' Association on Monday were very satisfactory. The Rev. Marsden Gibson presided in the afternoon, and Mr. A. H. Pearson read a practical paper on "Apples for Market," which was followed by an animated discussion. Mr. Bernard Cowan occupied the chair in the evening, the chief paper read being that of Mr. George Gordon on "Fruit Culture and Small Holdings," which met with good acceptance. Mr. Goaring discoursed on Small Fruits. Mr. Joseph Cheal and Mr. Lewis Castle did not attend to read on the subjects announced in the programme. Our correspondent, however, remarks "There was plenty without them, and, as rule, I think too much is promised at the meetings of the B.F.A."

— **THE DUTCH BULB FARMS.**—British bulb dealers will now be finding their way to Haarlem with the object of inspecting the bulb farms in the vicinity of that historic town, and some amateurs may be desirous of following suit. A visit any time during the next week or two would be well repaid, and Haarlem is quickly and cheaply reached either via Queenborough and Flushing or Harwich and Rotterdam. Apart from the large trade establishments, Messrs. Ant. Roozen & Son's nursery at Overveen, which is within easy walking distance of Haarlem; Messrs. Van Meerbeek & Co.'s nursery at Hillegom, reached by steam tram from Haarlem; and Messrs. Krelage & Sons, and Mr. C. G. Van Tubergen, junior's, establishments in the latter town should be visited.

— **STRAWBERRY LA GROSSE SUCRÉE.**—When looking round the gardens at Madresfield Court, Malvern, the other day, I was much struck with the above Strawberry as grown for forcing by Mr. Crump. I have grown it, also seen it in good condition at various places, but I never saw it in better condition than at Madresfield this year. Grown side by side with Noble, the fruit was nearly as large, of a beautiful bright colour, and the flavour was all that could be desired for a forced fruit. It is a very free setting variety when properly managed and well repays for good culture. La Grosse Sucrée is preferred by Mr. Crump to Vicomtesse Héricart de Thury, and rightly so I think, as Mr. Crump grows it, as the fruit is larger, throws its flower stalks above the foliage better than that variety, and can be had quite as early with care. It is a variety that should be largely grown where the soil suits it for forcing, also for garden culture.—JOHN CHINNEY.

— **EFFECTS OF THE FROST IN WORCESTERSHIRE.**—The late frosts and biting east winds have caused great destruction amongst the Plums and Gooseberries in some districts. The Plums which have suffered the most are Victorias, Early Prolific, Kirk's, Transparent Gages, and the Pershores; but the latter not so much as the others. If it had not been for the severe weather we should have had an unusually fine display of blossom in this the "land of Plums." The Gooseberries have also suffered very severely in some plantations. There is one four miles from here where the berries are falling off from the frost; the extent of this garden is 150 acres. Green vegetables are very scarce indeed; the Cabbages until this last four days looked miserable. Winter Onions are selling well from 3d. to 5d. per dozen, about fourteen or fifteen in a bunch, a remarkably good price; but of course they are scarce. Apple, Pear, and Cherry blossom looks promising at present.—J. W. Pershore.

— **FROST AND CATERPILLARS.**—Readers of the notes on page 295 on this subject will naturally be puzzled at my opening remarks, and Mr. S. T. Wright's concluding remark, "the frost and cold weather do not seem to affect caterpillars in the slightest." I certainly have no wish to infer that I am always right and that he is wrong, but Nature I must believe. It was noticed, and recorded, by the members of the Evesham Fruit Pests Committee in the spring of 1890, that the frost killed the exposed young caterpillars. I exhibited some early in April at a meeting held at Mr. Joseph Masters', then Mayor of Evesham. On the 16th inst.—after the two severe frosts of the 14th and 15th, on the morning of the latter of which every bud and bloom was enveloped in a shroud of icy hoar frost as bad as in

midwinter—a naturalist friend called; I fetched specimens of caterpillars with other pests from my fruit trees and placed them under my microscope for him to see, and they were, to use a familiar expression, “dead as mutton.” The friend referred to is Mr. Thos. Hunt, naturalist, Alcester, Warwickshire, who can corroborate what I have stated on page 295.—J. HIAM.

— **CONFUSION IN NOMENCLATURE.**—Your correspondent, “E. M.,” in his remarks on the Chrysanthemum analysis for 1891 says he is glad that John Lambert, Emily Dale, and others are omitted from the list, as he considers they only cause confusion. Having read some correspondence in past issues of your Journal in reference to the last-named sport, and also having seen it exhibited, I have certainly failed to arrive at “E. M.’s” somewhat arbitrary conclusion, more especially as the N.C.S. granted it a first-class certificate, and in various accounts of shows and otherwise it has received special mention in your paper. “E. M.” was, I believe, the only person to whom the sport was entrusted to grow and exhibit. I do not know whether it was named at the time or not, and if, as I suppose was the case, he gained a certificate for it at Chiswick as an improved form, then why should he now wish to discard it or any improvement in the Queen family? Surely a certificated variety is worthy of a name. I think it would be desirable for persons who are fortunate enough to have sports originate with them to keep them in their own possession till stocks are raised in order to avoid confusion, as in the case of J. Lambert and others.—LANCASTRIAN.

— **SNOWDROPS.**—Unfortunately the box which contained the dwarf late flowering Snowdrop mentioned by Mr. Thomson on page 293 was completely crushed in transit, and its contents so much damaged that I have been unable to describe the flower. In these circumstances the following extract from Mr. Thomson’s letter, which accompanied the box, may, I think, be interesting: “I send you one bloom of a quaint looking, late, and dwarf Snowdrop. The tube, as you will see, is wide, like a Campanula, and has four instead of three petals.” Mr. Thomson does not state, however, if he has proved this seedling over a year or two, as it is possible that the fourth petal of the tube may be peculiar to this year only. In any case the lateness and dwarfness of this seedling would make it of interest. I have a small lot of Snowdrops which I received as an early flowering variety of *Galanthus nivalis*. Instead of this they have turned out to be later in flowering than any of my other bulbs of *nivalis*. I had the opportunity of seeing the other day in a garden I was visiting what appeared to be a Snowdrop between *G. plicatus* and *G. nivalis*, the foliage being like that of the former, but hardly so plicate, and the flower more like the latter. It was a chance seedling, so that there is an interesting prospect in store for those who are gathering together a collection of these beautiful early flowers.—S. ARNOTT.

— **FROST versus FRUIT BLOSSOM.**—A fortnight ago I sent a short note to the Journal, saying what good prospects we had of a full crop of hardy fruits if we escaped late frosts. On the same date that the Journal was issued containing the above about 3 P.M. snow began to fall heavily, and continued till between eight and nine o’clock. After that hour the sky cleared and it began to freeze, the thermometer the next morning registering 17° of frost. The following day (Good Friday) was very bright, but at night “Mr. Frost” set himself the task of “doing for” the blossoms that might have escaped the previous night. On this occasion we registered 16°, and on the succeeding night 8°. Apricots, of which we had a splendid show, are all killed. The pistil is destroyed among Pears, both in blossom and bud. The earliest flowering among Plums are destroyed also. Apples were not advanced enough to suffer. Some Red Currants trained on a west wall, though in full flower, were not in the least affected. There is no business in life to which the old adage, “Don’t count your chickens before they are hatched,” applies more closely than to gardening, for it often happens that our greatest hopes are dashed to the ground almost upon the brink of realisation. For all that I still hope we have done with severe frosts for the present season, and though the earlier blossoming among hardy fruits are destroyed we may have the pleasure this season of storing up a greater weight of produce in our fruit rooms that was the case last year.—J. T., *Ripley Castle Gardens, York.*

— **PROPOSED TESTIMONIAL TO MR. JAMES HUDSON.**—The following circular has been issued to the members of the United Horticultural Benefit and Provident Society:—“Dear Sir,—Your Committee having considered that the time has arrived when the valuable services of Mr. James Hudson (the Treasurer) should be suitably acknowledged,

you are earnestly invited to assist them in their proposal. From an early period of the Society Mr. Hudson has been a zealous and indefatigable worker, and for over ten years he has been Treasurer, without any compensation whatever. His best efforts have always been directed to the development and progress of the Society, and much credit is due to him for its present flourishing condition, both numerically and financially. The Committee are always cheered by his presence and have profited greatly by his counsel, as he always acts with prudence and circumspection. Mr. Hudson does not intend to relinquish his duties as Treasurer, but hopes to continue for years to come; and the Committee feel sure that the members will be pleased with this opportunity of showing their appreciation of his valuable services, which he assures us has always been a labour of love. It is desired that early contributions, however small, may be sent to me, in order that the form of the proposed testimonial may be decided upon in time for presentation by the Chairman on the occasion of the annual dinner in October next.—W. COLLINS, *Hon. Treasurer.*” Mr. Hudson, has unquestionably done much for the Society, and enjoys the respect of all horticulturists.

THE CULTIVATION OF PEARS AT EDGBASTON.

[The following paper was read by MR. FRED. M. MOLE, at a recent meeting of the Birmingham and Midland Counties Gardeners’ Improvement Association. The Edgbaston district is the best and most fashionable part of Birmingham, but being a portion of the city, and in close proximity to a district where large factories, manufactories, and iron and mineral works exist, a smoky atmosphere too often hangs over the district, and outdoor fruit culture is difficult. This paper, the result of practical experience, was prepared with a view to show that with perseverance and thought Pears could be grown, and it must be borne in mind that it was written for those who have gardens in the near vicinity of smoky towns.]

IN complying with the request made to me that I should write a short paper on my experience in growing Pears, I must begin by explaining how I came to take an interest in the subject. It is now just thirty years since my first independent home was started at a house in York Road, Edgbaston, where there was a very small garden. I knew nothing whatever about gardening, but having a garden I could call my own I all at once felt a great interest in it. A friend suggested my having some pyramid Pear trees, which were not so commonly grown then as now, and advised me also to get the book “Rivers’ Miniature Fruit Garden,” which I did, and read very carefully. In this garden, however, against the back part of the house, and facing the south, was a large Pear tree, which I afterwards found to be a Marie Louise, and the second year after I went there it bore a number of large fine-flavoured Pears.

It was not long before I began to wish for a larger garden with a south wall, and a few years afterwards I took the piece of land and built the house where I am now living in the Westfield Road, Edgbaston, which, I may add, is less than two and a half miles from the centre of the city, and is now surrounded by villa residences. I have a south wall about 90 yards long, half of which I have devoted to fruit trees, mostly Pears. I have also two short lengths of wall, one with an east, the other with a west aspect, and my paper is written upon the course I have taken in growing Pears on these walls. I must mention that there is a peculiarity in the south wall, every other course being of special bricks, and which have a bead pierced with holes along the face of them to which the trees can be tied. The defect in this is the distance apart from bead to bead, and I am gradually covering the wall with strong galvanised wire netting, as I think that nailing fruit trees should be avoided if possible. The joints in garden walls are too apt to suffer by the action of frost, without being further injured by this process. I have seen a wall in an old country garden where the greater portion of the mortar, to nearly the depth of a garden nail, was gone from the joints owing to the nailing and unnailing of the fruit trees for many years.

But any wall can be covered by nailing on upright strips of deal about 2½ inches wide, and a little more than 2 feet apart, and then getting some galvanised wire netting 2 feet wide, 1½-inch mesh, not less than No. 16 wire gauge, and fastening it to the strips by means of screws or galvanised staples. A better plan still, but more expensive, is to have some galvanised diamond mesh lattice frames, 4 feet wide, with a 3-inch by 2½-inch mesh, and the height of the walls, fastening them to the walls as mentioned for the netting, in either case giving two coats of paint. I think a great deal of having trees neatly trained, and consider that well trained fruit trees are as pleasing objects to look at as are the shrubs in the ornamental garden, especially when in bloom and in fruit. With a wall treated as I have explained, trees can be trained to any shape; there is nothing but bast required. Not half the time is needed, and the work is not nearly so likely to be neglected as under other systems, in which the shreds and nails are often not at hand when branches are seen in the summer time that require tying in.

Another point in connection with this is, that I consider it desirable to keep the trees as close as possible to the wall. The bloom, I think, is more likely to escape the effects of frost and cold winds than when on branches standing some distance from the wall. The fruit can be kept more exposed to the sun, and it will, of course, get more benefit from the radiation of the heat from the wall the closer it is to it. As to the expense of covering the wall in the cheapest way with galvanised wire netting, 100 yards, 2 feet wide by 1½ inch mesh, and No. 16 W.G., will

cover about 25 yards run of a wall 7 feet 6 inches high, and will cost about 30s. To this has to be added the cost of the strips of wood and the fixing, but when the after saving of labour and the better training that can be done are considered I think it is well worth its cost, or indeed the lattice frames, to anyone who can afford to keep a gardener, and presuming the house and garden are held on a long lease.

The border on which my trees are planted is only 6 feet wide, as in order not to entail too much expense I took a comparatively narrow piece of land, which I have many times since regretted. The soil has been made about 20 inches deep, and I have a drain 2 feet deep running down the walk. The wall is divided by pillars into bays of about 12 feet 6 inches. I have used the pillars in the past for experimental purposes, planting single cordons or pyramids with one side cut off, and in the bays I have planted part horizontal and part five-branched upright trained trees.

Horizontal training is undoubtedly best for permanent trees, but four of the latter can be put where there could only be one of the former. The wall is covered sooner, a greater variety may be had if this is wished for, and perhaps there is a little better chance of a crop, having four trees to depend upon instead of one only. In planting, I

satisfactorily, which in this high and exposed part it unfortunately very often does not, there will probably be a number of Pears on every bunch; when they appear to be safe, and have got to the size of, say, a horse bean, I thin them down to about three, when they get larger to two, and when quite safe to one. A little later, if I think there are too many on the whole for the tree to bring to perfection, which will sometimes happen, I thin them again, and endeavour to leave them regularly distributed all over the tree. It is possible, of course, to get bunches of Pears and a great quantity on a tree sometimes, but not, I think, regular bearing or fine dessert fruit in that way.

When the fruit is set I have the trees well syringed about once a week, and during the early part of the season carefully examine them for insects, particularly the small caterpillar which glues the leaves together, or glues the leaves to the fruit and eats holes into it and the stems of the fruit. I am careful, also, as far I can without injury to future bloom buds that may be forming, to remove any leaves that cover the fruit so that it may be fully exposed to the sun. While this is going on I am looking also after the new wood; this, at least all I require, I tie in to get it as I have said as close as I can to the wall, and then cut the ends off, leaving about four or five leaves, and any superfluous new

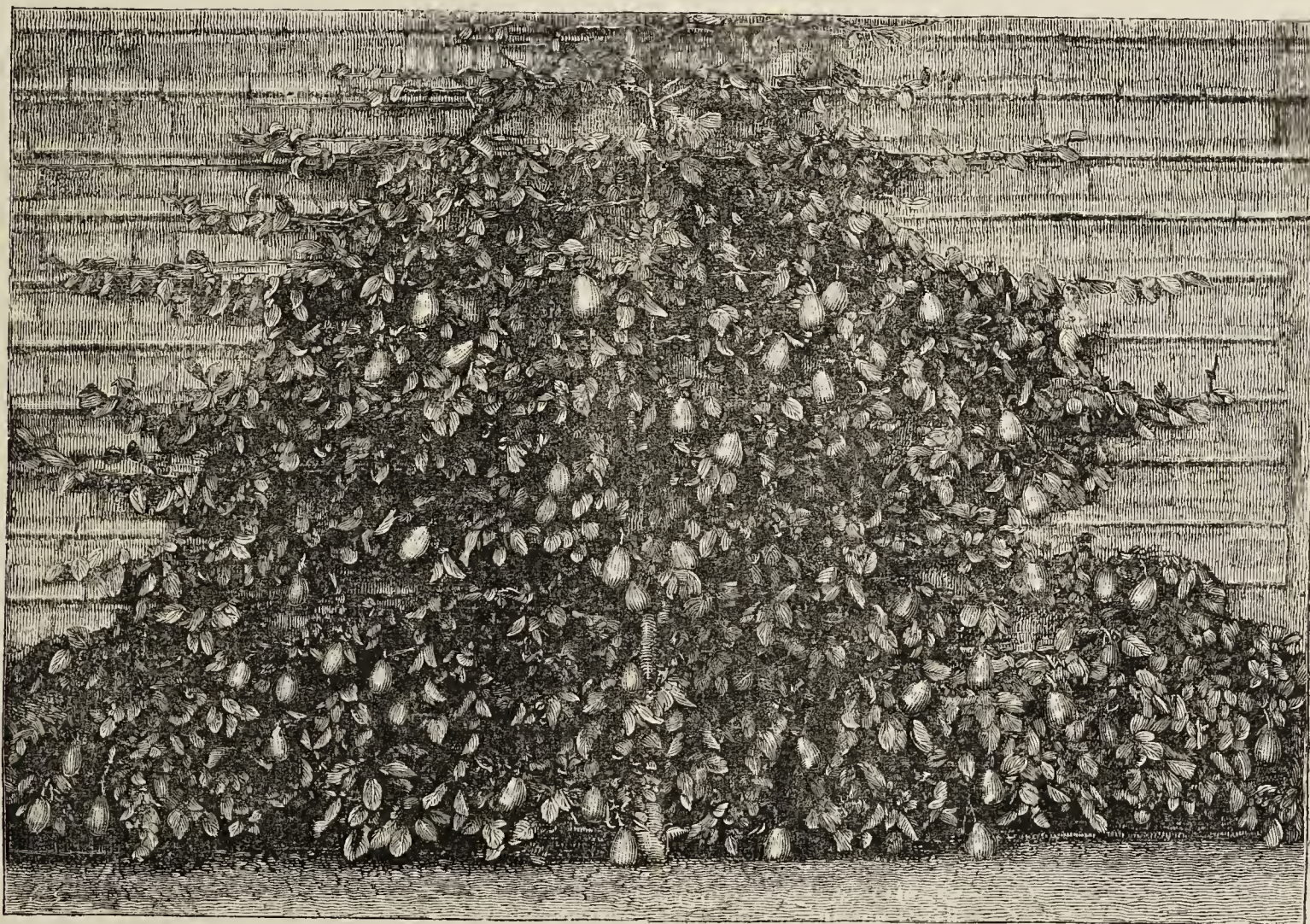


FIG. 54.—PITMASTON DUCHESS PEAR TREE. (GROWN IN A TOWN GARDEN.)

put four or sometimes nine 9-inch stones at the bottom of the hole about 18 inches below the surface, making a square foundation, beginning close to the wall and reaching 18 inches or 27 inches from it. This prevents any strong roots from striking downwards, and very much facilitates moving if required, also root-pruning. I think there is hardly one of my trees that I could not move with care if I wished, although one or two have been planted more than twenty years.

The border, at least the front portion, I plant with flowers, annuals for the summer, and in preparing the ground for these in June I put a little artificial manure near the surface in the neighbourhood of the roots of the trees. In the autumn I plant Daisies, Wallflowers, &c., and in working the ground for these I have, about every other year, or oftener if necessary, a deep trench made round each tree, going close up to the wall, and varying in distance from the stem according to the size and age of the tree. If young and growing too strongly I carefully examine the ball, and cut back any strong roots that may be found; if there are none I work up a little closer, or perhaps lift the tree altogether. The trench is then refilled with the soil and old manure mixed in. At the autumn pruning, if there is a superfluity of bloom buds, I cut some of them off; and again at the flowering time, if I find there is too much blossom, I snip off the weakest when the buds have burst, and before the petals have opened. It is of no use having three or four bunches of bloom close together, each of which may give a number of Pears, when only one fruit can be allowed to remain. If the fruit sets

wood I cut away altogether, keeping also in view the desirability, if possible, of preventing one part of the tree from growing stronger than another. At the autumn pruning I cut these shoots back to about three buds unless I have room to leave them longer; and shorten and thin out any old wood that is making the tree too crowded. I also cut back or draw in if I can any short useful branches that stand out too far, and rub off part of the buds, or cut away altogether those spurs which sometimes form with a number of small buds on them that never come to anything.

The main shoots of the horizontal and upright trained trees I have usually shortened to about 8 to 12 inches of new growth, but this year with the trees that are not fully grown I am leaving them the full length with the intention of shortening them later in the season. This is an experiment I am trying from having recently read in a small book by Mr. Wright, that leading branches when cut back, as I have been in the habit of doing, were apt to start only from the last two or three buds, the others remaining dormant. I have found this to be the case occasionally, and shall wait for the result of the experiment.

I now proceed to the descriptions of the Pears, and I must here add that it took me a great many years to learn what sorts would and would not do here. First, I consider it useless attempting to grow varieties in this neighbourhood that ripen after the end of December. I have tried Josephine de Malines, Bergamotte Esperen, and Olivier de Serres, and after keeping them for years have done away with them. The latter is

a beautifully flavoured Pear; but when the time comes for its ripening, about March, it is a poor withered thing with hardly a mouthful eatable in it, although I have always left it on the tree as long as possible, and kept it in a cool cellar. It has sometimes provoked a smile when I have seen such Pears planted as pyramids in new gardens in the neighbourhood after my failure with them on a south wall. Beurré Bachelier and Beurré d'Amanlis I have had. The former bloomed, set its fruit freely and grew to a large size, but had no flavour whatever. It might have satisfied some, but I do not believe in growing Pears that are not nearly so good as those which can be bought. Beurré d'Amanlis is very little better. Louise Bonne of Jersey, Gratioli, and Madame Treyve are all, I consider, inferior, being wanting in flavour, though doubtless very good in parts that suit them. Marie Louise d'Uccle and Fertility were peculiar in never getting mellow; they kept to the consistency of a Potato, and then decayed in the middle. Duchesse d'Angoulême, Beurré d'Anjou, Glou Morceau, Passe Colmar, General Todtleben, and others I have tried and dismissed, either because they are very shy bearers or because of the fruits not coming to perfection.

I now come to the sorts that I have succeeded well or fairly with. Jargonelle is known to most. It is not a desirable tree to have many of, as the wood is so long jointed, requiring much room, and the fruit also soon decays. I have only had a short experience of Clapp's Favourite, but I think it will do. Williams' Bon Chrétien does fairly well on the wall; but as a pyramid, when the bloom can be got, when it escapes the frost and cold winds, the fruit sets, and a summer follows to bring it to perfection, this Pear has been of finer flavour than from the wall. Those combinations, however, rarely occur in these parts in my experience, particularly of late years. Souvenir du Congrès does very well, and I had some fine fruit last year, both from my east and west wall. Fondante d'Automne is a delicious Pear in a good season, but rather shy in bearing. Pitmaston Duchess blooms and sets its fruit well, and is a grand looking Pear. It is not of such fine flavour as those I shall mention later on; but it is very passable, and is well worth growing. Marie Louise is an excellent Pear, although it often fails to set its fruit. I had some very fine fruit last year from a tree on my east wall, and it was with a dish of these and one of Pitmaston Duchess that I took the first prize in the local class at the Chrysanthemum and Fruit Show in November last.

Doyenné du Comice is the finest Pear of all, and of delicious flavour and texture. It seems rather more shy in bearing, and the fruit has not grown so large lately as in some former years. Whether this is due to the season or the increasing number of houses I cannot say; I hope the former. Beurré Diel, though rather a strong grower and a little more difficult to manage than some, is an excellent Pear to have. While very good, it is not so high in quality as the preceding; but no variety that I know is equal to it in blooming and setting its fruit. Durondeau is a handsome Pear, and does fairly well. I have only had a short experience with it, but I think it will answer in this part. There may be many others that would do that I have not tried, but I think those I have mentioned are enough, and give a sufficient variety.

As to gathering the fruit, the time, of course, varies according to the description and according to the season. I have gathered the last four Pears mentioned from the first week to the end of October, and they usually ripen in about a month; the earlier kinds in about a week to a fortnight from the time of gathering. I place the fruit on wooden trays in a cellar, with a slip of paper to each, giving the name and date of gathering; and I enter this also in a book, and the time of ripening, with remarks as to the quality, which I find useful for future reference.

There are one or two other points I would refer to. I have seen some arrangements advertised for fixing at the top of walls, with the view of protecting the bloom from frost, and many years back was almost tempted to try them; but my later experience has taught me that it is not an occasional light frost, but the cold winds and ungenial weather that we too often have at the flowering season that interfere with the fruit setting. Why, however, it sometimes fails to set when the season has apparently been favourable is a problem I have never been able to solve. I think it very necessary to have permanent metal labels, with the name and approximate time of ripening, put on the wall to every tree; they are as useful to the grower as to posterity. Then as the frequent visits to the trees, especially in the spring months, would tread the ground into a hard mass, I have pathway frames placed a short distance from the wall to walk upon. They are made of two strips of deal about 10 feet long or any suitable length, by 2½ inches wide, with pieces the same width and about 11 inches long nailed across, and about 3-inch spaces. They form something like a rude ladder, and if made of sound deal and painted they last a long time. They do not, I think, interfere to any appreciable extent with the heat and moisture reaching the roots, and I can walk along them and examine the trees in comfort at any time, no matter what the weather has been.

In conclusion, it was with considerable hesitation that I accepted the invitation to write this paper, because I have had no experience in writing, and I felt that with my small garden it was hardly worth writing about. I have not the knowledge of experts and those who have made fruit culture their study, and many have probably had far more and better experience than myself. Therefore what I have said I must ask to be taken, not as giving advice, but only as describing what I have done myself as an amateur. I have grown some good Pears, but every year I find I have something to learn. It has been a most enjoyable, and I believe a very valuable additional occupation. It has served to assist in taking my thoughts from those troubles which every business

man meets with more or less, and there is no greater pleasure to me than when I can, or feel I must, give a few hours to my garden. There is to my view an infinitely greater amount of pleasure gained in seeing in the garden the results of work done or superintended by oneself, and so far as gardeners are concerned my view is that when an employer has some practical knowledge on the subject he is far better able to appreciate the work of his gardener.

I had four of my trees photographed when in fruit last year; they were taken for me by an amateur friend, as souvenirs only of the best and most regularly distributed crop I ever had on these trees.

[Fig. 54 represents one of them grown as horizontally trained Pears should be, with the lower branches longer than those above them till the wall space is occupied. Mr. Mole's paper is both interesting and instructive.]

FRUIT AND VEGETABLE GROWING IN THE FEN COUNTRY.

At last I will redeem my promise by sending you a short account of the fruit growing and market gardening industry in this parish. The acreage of Cottenham is 7500, and the population 2500. There is a peculiarity about our social economy which does not exist in many other places. We count time from the year of grace 1842; events, with us, either happened before or after that date. Fifty years ago next Michaelmas 5000 acres (to use round numbers) of land was turned from pasture into arable, or perhaps it should be said the greater part of it was, and the remaining 2500 acres of arable was cultivated under such very different conditions that there is nothing to wonder at in finding people who passed through such a revolution looking back to it as the great epoch in the history of their parish.

The 5000 acres above mentioned is what we call "fen" land, but not more than about three-fourths of it is drained artificially, and fully one-half consists of a good loam, varying from light to strong and stiff, leaving the remaining half part to be classed properly as fen—i.e., a soil of a light friable texture, and dark or black in colour. This last is of course the lowest part of the fen; it has mostly a thin bed of not very good gravel under it.

It is not this part of the parish that is generally devoted to fruit growing, but on some part of it is grown a small quantity of general market produce for the supply of our local centre and county town—Cambridge. Since the price of Wheat has been low, besides this small quantity of vegetables a good many Potatoes have been grown; but as it is only on the light black land that the noble tuber thrives, it will be quite understood that we do not get for our Potatoes when grown the very highest Covent Garden prices. Asparagus has been, and is, grown on various parts of the fens, and with very "various" success; for while occasionally a good piece, and in one or two instances a very good piece, has been grown, on the whole it must be admitted that it is a very risky business on any part of our drainage level. In leaving this class of land it might be said that previous to its enclosure in 1842 with one slight exception it had probably never been under cultivation, at least not since the general subsidence of the great fen district in Cambs, Hunts, Norfolk, and Lincoln.

Previous to the enclosure above referred to our "highland" was cultivated on the "open field" system, which, had the same facilities for the distribution of the produce then existed that we now have, would have been a bar to fruit growing and market gardening. Since 1842, and mostly during the last fifteen or sixteen years, over 500 acres have been planted with fruit and Asparagus. Fruit trees are planted at rates varying from 100 to 300 per acre, with bush fruits under them. Of the latter Gooseberries and Raspberries preponderate, although all other common fruits are cultivated.

Our soil is a good substantial loam; the subsoil varies. The land is locally classed as "red," "strong," and "heavy." The "red land" is an outcrop of the lower greensand, which is from 4 or 5 to 14 feet in thickness. The greatest obstacle to the cultivation of fruit on this land is a thin layer, often not more than 3 inches in thickness, of a hard rocky stone, which all roots seem to be unable to pass. It depends upon the depth at which this rock lies whether trees will thrive or not. Where it is near the surface they have a great tendency to go wrong; canker or gall is what it is termed here. The result is that the growth of one year dies the next (or part of it), which, besides keeping the trees in a very stunted condition, has a very unsightly appearance, and there is little or no bearing wood. Where this is not more than 18 inches from the surface it would probably pay to dig it out. This is occasionally done in making holes for planting, but as healthy trees must have their roots near the surface it probably does as much harm as good if the layer is not taken from the whole area. Happily not very much of this class of land has the stone anything like so near the top as 18 inches. It is often from 3 to 5 or 6 feet deep. In this case little or no harm results, and it is this land which is considered our best.

Asparagus, unlike fruit, appears to thrive best on soil which has this rocky layer near the surface, for while nearly the whole of our "grass" is grown on red land, certainly the most successful examples of its cultivation have been on land which does not suit fruit or corn in anything like the same degree. In very hot dry seasons Barley and Wheat hardly come into ear at all in these very thin places.

Our "strong land" is a stiffer loam than the preceding, and has a less porous subsoil, but is generally good and useful both for farming and fruit-growing. Asparagus is not a good crop for land of this description. Underlying this is gault at irregular depths, varying from

2 to 4 feet, and this variation is generally met with (in draining, for instance) every chain, or sometimes at much less distances. This makes it very desirable to drain to a depth at least equal to the greatest depths of the good subsoil, otherwise the pockets formed remain filled with stagnant water.

The "heavy land" may be dismissed by saying that with the exception of the soil being more tenacious, and the clay immediately below it—consequently, both in wet and dry seasons, it is much more difficult to work—it answers as well as the last-mentioned class of land for fruit, especially Plums. In draining it requires two drains for one on the more porous land.

Taking the altitudes given in the new Ordnance Survey for comparison, our greatest height above the sea level is 47 feet; our least (in the fen) is 7.1 feet. The nearest approach to a hill our horses have to pull up is a rise of 16 feet in about $1\frac{1}{4}$ furlong, which occurs on a road that does not have much produce carried over it. All other roads are practically level. The greater part of the land on which our fruit is grown ranges from the above-mentioned 47 feet to a little over 20 feet. The nearer it approaches the higher figure the better, as spring frosts affect the lowest land most. The clouds of fog may be seen hanging on the low land for some time after the sun has dispelled it on the higher ground, and as "it is the darkest hour before the dawn," so it is, generally, the sharpest frost just upon sunrise. The difference of half an hour may make or mar a crop.

The relative order of the fruits grown here is Plums, Apples, Pears as standards or half-standards, and Gooseberries, Raspberries, Red and Black Currants as bushes and undergrowth. A few acres of Strawberries are cultivated, principally for the supply of Cambridge, and this is the only fruit that is in season during "term-time," a by no means inconsiderable inconvenience to many of the smaller growers who attend the weekly market on Saturday. During the three months of the year they have the greatest variety of produce there are no men "up."

Looking back over the last fifteen years there is no doubt but that, on the whole, growers here have been fairly rewarded; but it must be distinctly understood that it requires the outlay of considerable capital in the first instance, and three or four years of expensive cultivation, during which little or no return can be expected. Those who rush into the business without counting the cost, or on unsuitable soil, are likely to suffer, and it is to be feared that many persons throughout the country are at present in need of warning on this subject. Probably no one has been benefited to a greater extent than the great body of the workers, both men and women; the men by the much greater demand for labour in consequence of the increased cost of cultivation, and the women as gatherers of the fruit. Our population has slightly increased during the last decade, as is not the case in so many agricultural districts. This is not the place to discuss political economy, but surely the money distributed by this industry is good to all concerned—the employer, the employed, and the consumer—"it is thrice blessed."

On some future occasion I will supplement these remarks by a more detailed account of the operations in use and a review of the varieties of fruits grown, with, as far as my experience will enable, the results obtained.—YEOMAN.

[The notes would be of great interest, especially from such a practical man as our correspondent undoubtedly is, and who does good work in his district.]

NOTES AT THE NURSERIES.

Messrs. B. S. Williams & Son's.

THERE is an old story, well known to most, anent Dick Whittington shaking the dust of London from his feet, and departing thence, only to have his footsteps arrested by the chimes of Bow Bells. What they told him, and the result that followed his obeying their summons, are familiar, but it may not be known so generally that it was in Holloway that the aforesaid Richard began to have misgivings about the wisdom of the course he was pursuing, and that, moreover, the spot where he came to a standstill, and eventually decided to return, is there marked. It is with no intention of either supporting or quarrelling with history that this incident is here recalled, or with the object of throwing any ill-natured doubts on the accuracy of the landmark, which all good citizens are constrained to accept as unreservedly as Mr. Pickwick did the stone of Stubbs. It is mentioned for the purpose of suggesting that if any horticulturally inclined individual is in the same frame of mind as Whittington was, he might do well to take the same direction, and if the bells do not revive hope and courage, to call in at the Victoria Nurseries and see if peace cannot be restored by an inspection of their floral treasures. In Dick's time Williams' nursery was of the things to be, but it has been established long enough to become famous, and still flourishes as if in the vigour of youth.

Upper Holloway is a pleasant district in the springtime. It is not so far removed from the City as to be free from attack when the fog fiend is rampant, doubtless, but memories of the dark days may well be forgotten when buds are bursting into leaf and blossom in the spring sunshine. Its accessibility is more than respectable. The Archway Tavern focusses 'buses and trams from nearly all parts, and the nurseries are close by, while Upper Holloway Station is within three or four minutes' walk. Truly it is a place to visit. The management of the nursery has moved with the times, but the old principles of good culture are retained. It has been recognised that the days of specimen plants are over, and that other material takes their place, but Orchids and what are generally, if some-

what vaguely, termed decorative plants are cultivated as admirably now as the giants were a few years ago. No visitor who knows what good culture is can fail to find pleasure in the extent, variety, and condition of the plants. It is only as regards kinds, not as regards skill, that the old order of things has changed.

VARIOUS ORCHIDS.

It is idle to ignore that Orchids now hold pride of place in public interest. They almost monopolise it. Messrs. Williams and Son have a splendid collection, and at the present time it is full of interest, a walk through the various houses being rewarded by a beautiful display of bloom. A grand plant of *Cymbidium Lowianum* is one of the first objects to attract attention; it bears 149 flowers. *C. eburneum* is also in bloom. *Oncidium sarcodes* is full of flowers, and *O. superbiens* twined round a framework of light stakes is bearing its brown blossoms in profusion. *Cattleya Lawrenceanum*, unquestionably one of the most beautiful of its genus, is in bloom, and the rich, warm colour of the flowers is very effective. The fragrant yellow flowers of *C. citrina* are noteworthy, as also are those of *C. labiata*, opening out of season. *Ceologynes* are represented by *C. cristata* and *C. lactea*, the latter a charming little species. The two beautiful *Dendrobiums infundibulum* and *Jamesianum* are in bloom. Both are pure white with orange throat, but the colour is richer in *D. Jamesianum* than in the other, and it also has broader foliage. *D. Wardianum*, one of the most useful; *D. Devonianum*, *D. Phalaenopsis Schröderiana*, a beautiful form; *D. Brymerianum*, with its bearded golden lip; and *D. Ainsworthi* are represented. Another charming *Dendrobe* is the less familiar *mutabile*, an evergreen species with panicles of small white flowers occasionally tinted. Of *Lycastes* there are *cruenta*, deep orange yellow, very sweet, and *costata*, creamy white with fimbriated lip, a beautiful and free flowering species that is perfumed at night. *Maxillaria Sanderiana*, with its brownish purple throat and sepals suffused with pink; *Masdevallia macrura*; the pure white *Epidendrum falcatum*; *Schomburgkia rosea*; the creamy white and delightfully fragrant *Chysis bractescens*, and *Ornithocephalus grandiflorus* with quaint green and white flowers are also in bloom.

There are several charming *Calanthes* in flower, such as *C. Sanderiana*, a free blooming rosy carmine form; *C. Regneri*, *C. Stevensi*, and *C. Williamsi*, all of which are valuable when the vestita section are over. The evergreen *C. masuca* is also out. Of *Odontoglossums*, *O. hastilabium* was noted. The lemon-coloured sepals and petals, streaked with light brown, the ivory lip and purple throat, combine to form a most attractive flower. *O. Roezli* and *O. R. album*, with its delicious Sweet Pea perfume, are also both charming. *Phajus grandifolius* is just over, but *P. Wallichii* is flowering freely. The *Vandas* are making a beautiful display, and fill a large house with their agreeable odour. *V. suavis* and the four tricolor varieties, *Superba*, *The Glen*, *Formosum*, and *Dalkeith*, are in great beauty.

CYPRIPEDIUMS.

Those alone would well repay a visit. They form a display of great interest and beauty. *C. Sedeni candidulum* with its soft rosy flowers is very pleasing. *C. Swanianum*, a cross between *C. barbatum* and *C. Dayanum*, and *C. Argus*, are both handsome forms. *C. hirsutissimum*, which has become very popular, is in bloom, and its distinct flowers are very noteworthy. *C. barbatum Warnerianum* is equally effective. The hybrid *C. conchiferum* is not so well known, but as it is now in flower an opportunity arises of becoming acquainted with it. *C. Amesianum*, conspicuous by the yellowish tone that pervades the flower, is an attractive form. The magnificent *C. Morganiae* is in bloom, and another fine hybrid now out is *C. Schröderae*, admittedly one of the most beautiful of all the *Cypripediums*. To these may be added the names of *C. politum*, *C. Williamsi*, *C. albo-purpureum*, *C. tonsum*, *C. selligerum rubrum*, and *C. grande atrata*, which, with others, add to the beauty of the collection at the present time. They will suffice to show that lovers of these beautiful Orchids will find much to attract them at Holloway.

COOL HOUSE ORCHIDS.

The cool house Orchids are in splendid bloom just now. One of the finest in the collection is *Masdevallia Veitchi grandiflora*, a magnificent variety. The flowers are very large, and the colour rich salmon red, shaded with purplish magenta. *M. Shuttleworthi*, a small but attractive form, and *M. Harryana lilacina* may also be mentioned. There is a rich display of *Odontoglossums*, comprising many forms of *O. crispum*, of which *roseum* and *Trianae* are particularly attractive, *O. triumphans*, with its large brown flowers, *O. Pescatorei*, *O. sceptrum*, *O. gloriosum*, very free, Hawthorn-scented, and *O. pulchellum majus*, which is also very fragrant. These render a large house one of the most beautiful in the nursery, and it should prove specially attractive to those whose collections of Orchids are limited to cool house kinds.

CLIVIAS AND AMARYLLIS.

A large house of *Clivias* is now a brilliant sight, the plants being splendidly flowered. A few of the best varieties are *robustum*, pale salmon; *Surprise*, warm rosy salmon, very large and fine; *General Gordon*, somewhat dwarf and very deep in colour, verging closely on scarlet; *miniatum maximum*; *miniatum splendens*; *Baroness Schröder*, a fine light variety; *cruentum*, bright salmon; and *Lindeni*, bright salmon-vermilion, splendid truss of bloom. There will be a fine display of these for a long time to come. The *Amaryllis* are also in great beauty. *Morning Star*, bright satiny crimson; *Dr. Masters*, rich red; *Mrs. B. S. Williams*, creamy white; *Lady Ardilaun*, a handsome light

variety, white, streaked with crimson; Duchess of Portland, white, with broad flakes of deep carmine-crimson, large flowers; Fascination, white streaked with crimson; Princess Dagmar, crimson, white flakes; Ariadne, white, streaked rosy crimson, fine bold flower; Lothair, stout scape bearing four blooms, rich scarlet; Model, rich crimson, fine shape; Dazzle, crimson, white throat; and a seedling of the Empress of India type, as yet unnamed, of fine vigorous habit, with a strong scape bearing four flowers of fine form, rich crimson in colour, were the best.

If space permitted detailed mention might be made of Crotous, Dracænas, Palms, Ferns, Caladiums, Pitcher Plants, and many other features of the Victoria Nurseries, but it must suffice to say that all are extensively and well grown, a pleasure to those who inspect them, and a credit to the firm. That a visit would be well repaid no one need doubt, and it is hard to think that anything would be gained by delaying it.—P.



MR. W. J. GRANT.

I AM sure very many readers of the Journal, especially the rosarians, will rejoice to hear that I this morning had a letter written by Mr. Grant himself, saying that he was regaining strength, and hoped to get to work some time next month, and that he looked forward to meeting his friends at the Tea and Noisette Exhibition on June 21st. When we consider the terrible nature of the injuries he received and the almost hopeless condition in which he laid for many weeks, we cannot but look upon his recovery as marvellous, and I am sure very many will welcome the news and look forward to meeting him again.—D., Deal.

JUDGING ROSES.

WHILE making no claim to be included among "our leading rosarians," I yet venture to write a line upon the question raised by Mr. Biron in your last issue, because, with a new Rose campaign just before us, it is one of importance to both judges and exhibitors.

Three points are generally taken as the highest number to be awarded to any one bloom, and when officiating as a judge these points have always been allotted, in my mind—one for form, one for colour, one for size. If a bloom possesses all three of these qualities it should take the three points; if one quality is missing it would have two points, while if two were absent only one point would be given. If, therefore, the bloom were full-sized and of good form, but faded in colour, I would still give it two points, while if the colour were gone and size also under the standard I would give it one only.

I think that in competing stands "good" and "bad" should be taken as comparative, not as absolute terms. For a bloom to attain to the former rank it should possess all good qualities, while for it to be relegated to the latter category it should be devoid of them all, not merely have lost one of them in a greater or lesser degree. I remember hearing of a horse dealer who, upon being told by a rival to take home his animal as of no use, "He's one of the 'has been's,'" retorted, "Well, even at that he's better than yours, for *he* belongs to the 'never wases,'" and in the matter of competing Roses I agree with him. A "has been" is certainly better than a "never was," for it is frequently only the half hour which the judges are late in commencing their work which causes the slight fading or other deterioration of an otherwise perfect bloom.

I have not Dean Hole's famous book at hand to refer to, but I have a distinct impression that he urges beginners in Rose showing not to hesitate to stage a fine bloom because there is just a possibility of its being too far gone by judging time, and I believe he guarantees to his pupils the indulgence of all good judges for such flowers. I trust that we shall be favoured with the opinions of other judges and exhibitors upon these points, and that the discussion may result in a greater uniformity in the judging at future shows.—J. B.

BEFORE answering my friend Mr. Biron's question I should very much like to know what is his definition of a "faded Rose." I think all growers of H.P.'s have to mourn over the fact that their Roses (many of them at least) which are put on the exhibition table were not cut the night before, and if after a person has got his flowers wired and ready to start he goes out into his garden and cuts the same variety in the same age of blooming, he will probably feel disgusted at the difference. If, then, any fading of colour, any "flying," as it is sometimes called, be considered to stamp a flower as a faded flower, I fear that a great many of the Roses at our shows would fall under that stigma. Will Mr. Biron, then, kindly define a faded flower?—D., Deal.

I HAD an interesting correspondence last year with my friend, Mr. Biron, on the subject on which he now writes to the Journal; but owing no doubt to denseness on my part we did not, I believe, understand each other. I think there is really very little difference of opinion between us, but somehow or other we could not seem to see it. Now, for instance, I do not see any real difference between the two opinions he

cites and wherein he finds a difficulty. 1, "That a faded flower of good form is entitled to one or two points;" and 2, "That such a flower is a bad one, and should have one or two points taken from it." Taking three points as the standard according to the rules, these apparently opposite opinions actually coincide; the one takes one or two points (from three), and the other gives one or two points (but not, of course, to three), and the result is absolutely the same—one or two points. The only phrase I should object to is, "a bad one." The instructions of the N.R.S. to judges naturally show what constitutes a "good" Rose and what a "bad" one, but it is plain that there must be degrees of goodness and badness; otherwise every Rose would get three points or none at all. Thus a faded Rose of good form would perhaps have some goodness to prevent your giving it no points, and perhaps some badness to prevent your giving it three.

My second, perhaps, would imply that a faded Rose might have the full three points which I hope to show is not uncommonly done. Suppose we divide faded Roses into three classes. The worst, I should say, would be the "burnt" dark Roses. A Reynolds Hole or Dr. Sewell with any of that brown stain across its velvet sheen would be seriously disfigured, it would not take much of it to have the blooms pointless. In the second class would be the ordinary forms of fading. Alfred Colomb or Marie Baumann paler and duller than the type would generally entail the loss of at least one point according to degree; while Duke of Edinburgh a few hours too old, with less of the scarlet and more of the crimson, would be a more venial offender. In the third class would be all Tea Roses, except pure white ones. Little heed is taken, I fancy, of how generally, almost universally, these Roses are exhibited in a faded condition.

All pink or yellow Teas are more or less faded when grown out of doors and not most carefully shaded by artificial means; for instance, how many Maréchal Niels, Boule d'Ors, and Madame Hostes of yellows, or Souvenir d'un Amis and Catherine Mermets of pink, are shown as deeply coloured on the outer petals as within? And that they are not thus whole coloured is merely the result of fading from the outset as soon as the calyx turns back, as may be seen under glass or careful shading. May I not truly say that I have very rarely seen a medal Tea bloom that was not more or less faded? This early fading out of doors is, by the way, no doubt the reason why so many practically white Teas are described as anything but white in the catalogues, the description has been taken from the first specimens grown under glass. My idea, therefore, is that the number of points that should be taken from a faded Rose is entirely a question of manner and degree of fading, which cannot be accurately described or limited, but must remain to a certain extent as a consideration of taste and experience.—W. R. RAILLEM.

THOUGHTS ABOUT TOMATOES.

No doubt the written thoughts of Mr. W. P. Wright on page 179 set many other persons thinking. The subject is very wide, and there is plenty of room for various opinions and theories. The past few years have made the chances of success rather small, and many growers will pause this season before devoting so much ground or house room to their culture as formerly. But there is this encouragement to be remembered, in our variable climate we are just as likely to have a good season as a bad one. When growers remember the heavy crops of the Jubilee year they are reluctant to throw up the chance of experiencing another such season. Year after year the plants are carefully prepared, and the only return is disappointment. I much question whether we shall ever have such a remunerative crop as in 1887, for it appears to me the disease has covered the country. It is only a few years ago that it appeared confined to certain districts, but at the present time it is general.

Mr. Wright appears to think they will be a paying crop for many years to come. It may be so, but I am strongly of opinion that the actual growers will never reap the harvest from this crop that they have done in past years. There are so many acres of glass devoted to the cultivation of Tomatoes at the present time, that in the possible event of a good season the prices would fall so low that returns would barely pay expenses. You may take it for granted, that when the largest growers in this country begin to "edge off" by taking up fresh lines, they have found the crop is not so profitable, or that they can make more money in other ways. Of course all the small growers follow the example of the leaders, consequently everybody has been taking up Tomatoes, with the result that the large growers are looking out for something better. The crops may still pay, but the returns are far below the prices realised five years ago. The British public, or perhaps I ought to say a large section of it, will only patronise a certain class of produce so long as there is nothing better, but if once a better form is produced the sooner growers give up the old variety the better it will be for their pocket.

It is not many years ago that the major portion of market men only grew the corrugated section of fruit, as Trophy, Large Red, Northumberland Red, and others, because they obtained a greater yield. Now the smooth round varieties have become known the rougher forms are neglected. If top prices are to be realised the smooth varieties must be cultivated. If we take a look round the best fruiterers' shops in London, or any large provincial town, the smooth varieties are in greatest abundance. A retail man told me last season his customers would not have the corrugated forms while the round ones were obtainable. This has handicapped the producer to a certain extent, for it is an undisputed fact they do not carry such heavy crops as their coarser compeers.

Mr. Wright's remarks on the disease will be re-echoed by many growers. Where the plants are grown in heated houses they can be fairly well managed, though there is nothing that will take the place of sunshine; but in unheated structures the plants require constant watching and care. With the utmost care last season the plants failed to be at all satisfactory; dampness was a great enemy, for it meant an attack of the disease, while the dull sunless days favoured an outbreak that all the care bestowed did not check. It is all very well to keep cutting out the diseased leaves, but the plants soon show, by a declining vigour, that they cannot compete with the constant lopping off of their limbs, and sooner or later they become worthless. Once they lose their vigour, and it is impossible to get the flowers to set. Outdoor crops in recent years have been almost out of the question; though plenty of fruits have set, the disease has taken such a hold of them before they were cut that the majority have to be destroyed. Many fruits appear sound when cut, but after they are placed in the houses to ripen they go black.—J. B. RIDING, *Chingford*.

DAFFODILS AT LONG DITTON.

ALTHOUGH we from time to time hear laments with respect to the Daffodil disease, yet that scourge, if it be worthy of such an appellation, seems to be confined to limited areas, and to those growers who seem to be destined ever to be unfortunate. At Long Ditton Messrs. Barr & Sons have, we might almost say, millions of bulbs growing. Certainly there are some 8 or 9 acres thickly covered with Daffodils, and there is no more disease there than there are snakes in Iceland. It does not, of course, follow that the culture is abnormally good or the flowers of exceptional size, and so forth. What the firm rather aim at is to produce hard clean bulbs in enormous quantities, so as to ensure purchasers having good flowering bulbs the first year of planting, for it is a great disappointment to Daffodil purchasers to find bulbs so small or soft that they need a year's recouping before they will produce flowers. At Long Ditton it is not merely the immense variety found in the Daffodil which surprises the visitor, but it is also the quantities of the finer varieties which astonish him. Such long beds, such dense masses of flowers, such profusion and beauty are quite bewildering; yet there is some possibility of making selections according to taste in spite of the immense numbers of varieties, because as seen growing in such abundance the diverse sorts show their true characters, and enable those making selections to do so with greater facility than can be the case when the selections have to be made from collections of cut flowers. This the market grower finds instinctively because of the wealth of blooms produced by Emperor, Horsefieldi, C. J. Backhouse, Beauty, Ornatus, Santa Maria, Frank Miles, and others when grown in quantity.

Daffodils now have become market material of such importance that good stocks represent real worth, and so far as appearances go there is very little prospect of any appreciable depreciation resulting. It seems difficult to understand how the public did without Daffodils only a few years since. It would be more difficult to realise the public dispensing with them now or in future. Flowers come into the market very early in the year from warm southern countries, and keep the markets fully supplied until our own come in from outdoors in April and May, although vast quantities are produced by us exceptionally early under glass. Hence it is seen that Daffodil culture, whether for the supplying of flowers for market or for the production of bulbs for trade development, and to satisfy the growing tastes of amateur cultivators, has become a great industry and needs to be carefully catered for. That attention is also being closely applied to the production of novelties is also evidenced at Long Ditton. Mr. Peter Barr is now making a tour through Spain and adjacent countries for the purpose of hunting up varieties which have even in that well explored district escaped notice. But some raisers have been creating novelties through cross fertilisation, and one of the most noteworthy of these is Weardale, probably the finest of all the single trumpet Daffodils yet seen. The sepals are pale yellow and the tube is nearly pure white. It is probably half as large again as is Emperor. Then comes Glory of Leiden, sepals pale yellow, trumpet rich yellow, very fine; Madame de Graaf, nearly pure white throughout, a very full flower. Monarch is also a fine new variety of the trumpet section. Probably we have now as fine a selection of these large flowered single Daffodils as will be obtained. Mr. Engleheart has numerous pretty forms, one especially having the white tube edged with gold; but so far as mere size is concerned that is perhaps big enough for all purposes, as variations in colour and markings are now most desirable.

Amidst such an abundance of varieties as may be now seen blooming at Long Ditton beyond those already named, it would be possible to give a very long select list, but what would it avail? Those who want a good selection should see the Daffodils growing. Of my own fancy I thought the true *N. cyclaminus*, the sepals of which reflex back to the stem and are quite erect, to be a very interesting form; whilst especially pleasing, not only because producing two and three flowers on a stem, but because so bold, erect, and of such a rich yellow self colour, is *Rugulosus*, and for cutting purposes I cannot conceive of a more useful variety. It is also sweet scented. Not a large flower, but one of remarkable floriferousness, is Santa Maria, and not less free, perhaps even more so, is Queen of Spain, sepals well reflexed, a really beautiful variety. Very pretty, too, is Mrs. Vincent, of the moschatus section, the tube long and the sepals broad. William Goldring is yet

another good form of this class. The big Sir Watkin, like many varieties, is hardly up to its usual size this year. Still there are some charms about Daffodils other than is found in mere size, and for ordinary garden or domestic decoration many of the medium-sized bloomers are perhaps the most pleasing. C. J. Backhouse and Barri conspicua are both especially charming of the coloured corolla section; as, of course, also is the later and everywhere beautiful, pheasant-eyed ornatus. There are many things to be seen at Long Ditton to lend variety to the somewhat monotonous hues of the Daffodils, especially big beds of *Anemone fulgens*, blooming gloriously; and large masses of various coloured Tulips; blue Grape Hyacinths, rock Phloxes, *Iris pumila* in variety, and other flowers, whilst the big breadths of red foliage of the large collection of *Pæonies* all help to give welcome variety in coloration.—A. D.

HERBERTIAS.

SIX species are now included in this genus, the name of which perpetuates that of the Hon. and Rev. W. Herbert, who studied the



FIG. 55.—HERBERTIA PULCHELLA.

Irids, Amaryllids, and allied plants closely and carefully in the early part of the present century. Two forms, *H. Drummondii* and *H. cærulea*, are natives of Texas; the remaining four, *H. umbellata*, *H. brasiliensis*, *H. unguiculata*, and *H. pulchella*, are found in South America. It will be unnecessary, however, to describe more than one—viz., the last, *H. pulchella*, as most of the others are either not in cultivation or very scarce. This, though a native of a warm climate, is found to succeed well in a cool house or frame where frost can be excluded, and a little heat afforded in very damp weather. It is best grown in pots well drained, a compost of peat, a little turfy loam and sand, being adapted for it, supplying water carefully.

In habit it is slender and graceful, with narrow leaves and pretty flowers produced singly on a scape 8 or 9 inches high. The sepals are about half an inch broad, 3 or 4 inches long, curving downwards, deep blue with a light streak extending down the centre. The woodcut (fig. 55) shows these characters very well. It may be observed that the figures of some varieties of *H. pulchella* given in the "Botanical

Magazine" some years ago by the gentleman whose name the genus bears, differ considerably from that represented here, the sepals being shorter, broader, and duller in colour.

HIGHFIELD HOUSE, GAINSBOROUGH.

THIS, the charming residence of F. M. Burton, Esq., is situated on a hill about one mile from Gainsborough station, and commands a delightful view of the surrounding country. A large portion of Nottinghamshire is seen on the other side of the Trent, and glimpses of Yorkshire and Derbyshire in the distance. The garden, although not extensive, is full of interest, all available space being cultivated with the greatest care. The borders, of which there are many, are filled with the best herbaceous plants and bulbs. Ponds are rich in aquatic plants, and the rockeries are full of choice Alpines. Andromedas and other American shrubs are flourishing in beds of peat; Sarracenias are quite at home at the foot of the rock garden. The beautiful *Primula* tribe is well represented, including *Polyanthus* and the small but free-flowering *Auriculas*. *Gentianas* in many sorts, and *Cypripediums*, such as *C. Calceolus*, *C. parviflorum*, and *C. spectabile*, are looking remarkably well, and to give additional interest, every known plant is carefully labelled with the Stratford imperishable label.

Some of the houses are well filled with a good collection of Orchids, and these evidently enjoy the clear fresh air of Lincolnshire, for they are very healthy, and some generally considered as bad to manage, such as *Warszewiczellas*, *Pescatoreas*, *Colax*, and *Phalænopsis* are quite vigorous here. In one house are some 500 seedling *Cypripediums*, and no doubt something more will be heard of them later on. *Cyrtopodium Andersonianum* is sending up strong flower spikes and growths. The soil and treatment are similar to those usually given to *Calanthes*. *Grammatophyllum Ellisi* in the same house is growing strongly. In another is a large plant of *Cymbidium Lowianum*, with several of its graceful arching spikes of bloom, and various *Cypripediums*, including *C. bellatulum*, *C. calophyllum*, *C. ciliolare*, *C. Dominicanum*, *C. euryandrum*, *C. Hookeræ*, and others. Also noticeable were good pieces of *Vanda Denisoniana*, *V. teres*, *Saccolabium curvifolium*, with showy red flowers, *Oncidium ampliatum majus*; *Dendrobiums*, *Cattleya Mendeli* and *C. citrina*. The *Cattleya Mossiæ*s are promising well for a display in a few days' time. A low span-roofed house contains the cool growing section. *Ada aurantiaca* was flowering freely, also *Odontoglossum crispum*, *O. cirrhosum* with very strong spikes, *O. hystrix* and *O. triumphans*. Amongst the *Masdevallias* was a very fine form of *M. Shuttleworthi*. None of the Orchid flowers are allowed to remain for any length of time on the plants, and this no doubt contributes to their healthiness.

Other houses are filled with ordinary greenhouse plants for decoration and cut flowers. The vineries and kitchen garden are in excellent order and reflect great credit on the gardener, Mr. John Dinwoodie, to whom I am indebted for a hurried "look round" on Easter Monday.

My impression was that Mr. Burton is a thorough horticulturist, and although Alpines and Orchids are specialities they do not prevent his seeing beauty in other plants.—G. W. CUMMINS.

ROYAL BOTANIC SOCIETY.

APRIL 27TH.

CHARMING weather favoured the opening of the Royal Botanic Society's second spring Show, and a very attractive exhibition rewarded those who were tempted into the gardens by the pleasant surroundings, the long glass corridor looking at its best, although the Show was not quite so large as the first one of the season.

Azaleas were shown in excellent condition by Mr. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate. The plants were not large, but were very clean, finely bloomed, and quite as effective as huge specimens would have been. Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, had plants less freely flowered though healthy and clean, and was placed second; the third prize falling to Mr. James, Castle Nursery, West Norwood. Roses were a delightful display. Messrs. Paul & Son, The Old Nurseries, Cheshunt, had a collection, not for competition, comprising large specimens in robust health, and well furnished with flowers; also smaller but well-bloomed plants in 8-inch pots. These were greatly admired, and a large silver medal was awarded. They also secured the first prize for six plants, exhibiting some splendid specimens, *Violette Bouyer* being particularly fine. The second prize went to Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, who had healthy plants, carrying fresh and well-coloured blooms. He also had a beautiful display of plants and cut blooms not for competition, for which he received a silver medal.

There was only one exhibitor of *Dielytra spectabilis*, Mr. R. Scott. He staged twelve fine plants, vigorous, healthy, and well furnished with their beautiful arching sprays, and well merited the first prize which was awarded. The same thing occurred with *Begonias*, Messrs. Laing and Sons being the only exhibitors. They had admirable plants considering the earliness of the season, both singles and doubles being well developed and carrying fine blooms. The first prize was awarded. The first for *Amaryllis* fell to Messrs. Paul & Son, Cheshunt, who exhibited twelve seedlings, and the second to Mr. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, both having good plants.

Spiræa japonica was splendidly shown by Mr. R. Scott; Mr. Morle, the Grand Floral Depot, 283, Regent Street, London, being second. Messrs. J. James & Son, Woodside, Farnham Royal, Slough, won easily with *Cinerarias*, their plants being profusely bloomed, and the colour, form, and substance of the flowers excellent. Mr. Douglas was second. Messrs. James & Son also received a small silver medal for a group of *Cinerarias*. Mr. Morle had some fine pots of *Mignonette*, the variety being one named Improved New Dwarf Compact. The plants answered to the description conveyed by the name, and were grown without stakes. Mr. F. Stansell, 88, Macfarlane Road, Wood Lane, Shepherd's Bush, was second. Messrs. Paul & Son, of Cheshunt, were first both with collections of hardy herbaceous plants and Alpines, and Mr. Douglas won with twelve *Primula Sieboldi*.

Auriculas were fairly shown. Mr. Douglas had a good dozen and was placed first, his *Marmion*, *Elaine*, *Fanny Glass*, and *Abbé Lizst* being very good. Mr. A. J. Sanders, gardener to Vicountess Chewton, Bookham Lodge, Cobham, followed, and Mr. Turner was awarded the third prize. Mr. Douglas also won with Alpines, these being excellently shown. Mr. Turner was second and Mr. W. L. Walker, Bulmershe Road, Reading third. Second prizes only appeared to have been awarded for *Polyanthuses* and hardy *Primulas*, and these were secured by Mr. Douglas.

A beautiful group of plants came from Messrs. Laing & Son, Forest Hill, comprising Orchids, Anthuriums, Azaleas, *Spiræa astilboides*, *Crotons*, *Dracænas*, *Ericas*, *Cannas*, *Clivias*, and many other plants. They were conspicuous for tasteful arrangement. They also staged several *Begonias*, and a beautiful box of cut blooms. A large silver medal was awarded. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, received a silver medal for one of his beautiful and characteristic collections of hardy flowers, which comprised many charming things; and a small silver medal was awarded to Mr. Charles Turner, Royal Nurseries, Slough, for a group of new Azaleas. Messrs. Carter & Co., High Holborn, London, had a beautiful display of their Brilliant Prize *Cinerarias*, an excellent strain, and received a silver medal. They also exhibited an interesting collection of succulents, of which they are now making a feature, and a large bronze medal was adjudged. Messrs. Barr & Son, King Street, Covent Garden, had a very extensive display of Daffodils well illustrative of their resources with this popular flower, and were awarded a large silver medal. Mr. J. Walker, Thame, Oxon, had some charming boxes of *Niphetos*, *Maréchal Niel*, and other Roses, for which he received a small silver medal.

Certificates were awarded to the following plants and flowers, but they were too numerous for description in the limited time at disposal; moreover, several of them have been described before:—*Aglaonema costata*, *Grevillea robusta elegantissima*, *Tillandsia Moensi*, *T. Massangeana superba*, *Amaryllis Crimson King*, *Streptocarpus Gaiety*, *S. Linda*, *S. Nestor*, and *S. Sidonie*, exhibited by Messrs. Veitch & Sons. The latter mark a further step in the advance of *Streptocarpuses*, and a collection of named forms may be expected the same as in *Gloxinias* and other flowers. To *Croton Reidi*, *Anthurium atrosanguineum*; *Begonias* (tuberous), *Princess May*, *Princess Christine*, *Baroness Burdett Coutts*, *Mrs. Coomber*, and *Mrs. Regnart*; *Clivia Lady Wolverton*, and *Streptocarpus The Pearl* from Messrs. J. Laing & Sons; to *Erythronium Smithi* and *Muscari paradoxum* from Mr. T. S. Ware; to *Cattleya Skinneri alba oculata*, a beautiful form that will be referred to in a future issue, from Sir W. Marriott, Bart., The Down House, Blandford; to *Auriculas Fanny Glass*, *Nellie Hibberd* (Alpine), from Mr. Douglas, Countess, *Phyllis* (Alpine), from Mr. Turner, and *Ben Simonite* from Mr. W. L. Walker; to *Narcissi incomparabilis Gloria Mundi*, *Johnstoni Queen of Spain*, *Leeds Katherine Spurrell*, *M. J. Berkeley*, *Burbidgei Ellen Barr* and *Incomparabilis King of the Netherlands* from Messrs. Barr & Son; to *Roses Gustave Piganeau* and *Margaret Dickson* from Messrs. Paul & Son, Cheshunt.



HARDY FRUIT GARDEN.

PROTECTING FRUIT TREES.—Severe frosts and wintry weather, generally accompanied with cold easterly winds and bright sunshine, have had an injurious effect on fruit tree blossoms which the summer-like conditions of early April forced into expansion. Efficient protection has been the means of securing the safety of crops against walls; and bush, espalier, and cordon trees are not difficult to protect when means are afforded, as they should be.

RASPBERRIES.—If not already done mulch the ground between the rows with rich farmyard manure. Previous to doing this rake off the dry winter mulch, and lightly fork over the ground between the rows, only, however, the central portion, which may not be occupied with roots. The soil immediately around the stools of established plants is generally so fully permeated with root fibres that it is not only difficult but positively injurious to dig among them. When the suckers com-

mence growing early thinning is advantageous, removing those not wanted and planting elsewhere.

STRAWBERRIES.—In forward situations Strawberries are showing flower trusses, which will advance rapidly. Moist weather affords a suitable opportunity to give the plants a dressing of some artificial manure. Guano, at the rate of 1 lb. per rod, mixing it before distribution with six times its bulk of soil, or preferably burnt refuse or fine charcoal, which contain no seed of weeds, may be applied now. Native guano is not so strong as Peruvian, and can be applied at the rate of 5 or 6 lbs. per rod. Soot is excellent dusted between the plants, making the soil black; it destroys small slugs and improves the colour of the foliage. Any of these can be applied before the mulching of straw yard material is placed between the rows, which ought to be done before the flowers advance and the foliage spreads too far. By applying the mulching in good time its virtues are carried down to the roots, ready to be of benefit to the fruit as well as conserving moisture in the soil. In addition the manure becomes sufficiently washed to form a clean base for the fruit to rest upon. Any further help the plants need can be given in the form of liquid manure during the swelling of the fruit.

GOOSEBERRIES AND CURRANTS.—Keep the ground among these clean by repeated hoeing in dry weather, or, if not already done, apply a mulching over the roots as far as the branches extend of rich manure. As soon as aphides or caterpillars appear syringe the trees with a solution of softsoap and quassia chips; 6 lbs. of softsoap dissolved in fifty gallons of water with the extract from 2 lbs. of quassia chips boiled will destroy both. Hellebore powder effectually destroys caterpillars whenever it touches them, but being poisonous it must be syringed off again with clear water.

DISBUDDING.—Apricots need the earliest attention. Remove gradually all superfluous shoots, retaining the best placed, but dispense with all foreright shoots, also gross and watery growths. As the Apricot bears on spurs of older wood as well as on the previous year's shoots, a larger number of current growths can be retained, but not so as to injuriously crowd the trees. These should be pinched to three leaves before they attain an undue length. According to the weather continue to disbud Peaches and Nectarines. During cold periods very little attention is needed, but when the days and nights are warm and moist growth proceeds rapidly. It is then necessary to be on the alert so that shoots do not become too long before removal. Foreright shoots remove as soon as noticed, rubbing them off with finger and thumb, as cutting back when longer only results in further growth. Leave the best placed shoots as may be required for furnishing the trees, choosing those near the base. Begin the work of disbudding in the upper parts of the trees as a rule, but have an eye to all other parts at the same time. Shoots bearing young fruit require shortening to a point above three or four well-developed leaves. Weak branches in any part of a tree may be materially strengthened by allowing one or two more succession shoots. Aphides or red spider becoming troublesome must quickly be destroyed by syringing the trees in warm dry weather with lukewarm water, or with a similar solution to that recommended for Gooseberries.

WATERING FRUIT TREES.—Many trees, especially those growing against walls, become a prey to insect pests and general debility through lack of moisture and nourishment at the roots. This must be remedied first by loosening the soil, then applying clear water copiously, followed by free applications of liquid manure. One or two more applications may be necessary before the soil is thoroughly moistened. When this is accomplished mulch over the roots with manure, also see that newly planted trees are moist.

FRUIT FORCING.

VINES.—*Early Houses.*—Grapes now colouring fast will require abundance of warm air by day and night, with plenty of atmospheric moisture, damping the walls, paths, and mulching. This assists the Grapes in swelling and preserves the foliage in health. A careful examination of the inside borders should be made, and if they are dry a liberal application of tepid liquid manure will be a powerful aid to the Vines. Gradually reduce the night temperature as the Grapes ripen, keeping the atmosphere dry and cool, but guard against excessive dryness, as early Grapes with ventilation require much more water at the roots than late ones, with moderate air moisture for the benefit of the foliage, which must be kept clean and healthy as long as possible. When approaching ripeness moderate fire heat will be required to keep up a temperature of 60° at night and a little more in the daytime. Gradually remove the fermenting materials from outside borders, leaving a mulching of some that is partially decayed for the protection of the surface roots, and allow them to have the benefit of summer rains, which will wash the fertilising elements of the manure into the soil, and stimulate the Vines into the production of new laterals after they are relieved of the crop, which tends to the health of the principal leaves.

Midseason Houses.—Attend to thinning the free setting varieties as soon as the berries are set, but Muscats and other shy-setting kinds should be left until the properly fertilised berries take the lead. If a large percentage of the surplus bunches were not cut off before they flowered no time must be lost in getting them removed; and laterals that have been allowed to ramble may be stopped, tied, and regulated in accordance with the space at command. Inside borders may have a thorough supply of tepid liquid manure, and a mulching of short rather lumpy manure. It is well to use sweetened horse droppings and spread them over the whole surface in order to afford the Vines the benefit of

an ammonia-charged atmosphere, adding a few fresh droppings from time to time, but care must be taken not to overdo it, or the ammonia will be too powerful for the tender foliage of the Vines. Where the Vines need extra support a liberal dressing of artificial manure may be given with great benefit, but it is necessary to carefully follow the instructions. Phosphatic and potassic elements, with lime in sulphate form, are those chiefly required by Vines.

Late Houses.—The weather has been unusually cold for early April, and the Vines are somewhat late, but they are now making good progress. There are, however, complaints of bad breaks, which mainly arise from imperfect ripening of the wood, and the production of tendrils or loose bunches may be attributed to the same cause. In order to prevent bad breaking and the disposition to run into tendrils, the late Vines should be started earlier, and be ripened with more fire heat in late summer, so as to secure thoroughly finished fruit and perfectly matured wood. Various expedients are resorted to for correcting the evil, none being better than stopping the shoots three or four joints beyond the fruit, tying the growths down to the wires. Choose the latter part of a fine day for this operation, when they are limp, keeping them rather drier and warmer by day. Gros Colman and other late free-setting Grapes should now be setting, they will then have all the summer before them. These Grapes require more water and a longer time to grow and perfect than other Grapes. Muscats and other shy-setting varieties should be carefully fertilised, operating on fine days when the temperature has reached its maximum, employing pollen from free-setting varieties, and maintaining a brisk rather dry atmosphere. A temperature of 70° at night and 75° by day is not too much for Muscats when flowering. It is usual to leave surplus bunches until the flowering is over, which is a mistake, as Vines that do not set a proper number of bunches satisfactorily are not likely to do so better when more are left; in fact, it is wise to make a selection of the bunches that are to remain for the crop before they come into flower, remembering that big and loose bunches are worst for finish, and the medium-sized and compact the best for ripening well and keeping.

Late Hamburgs.—These are moving rapidly and need attention in disbudding, tying down, and regulating the growths. Do not stop the shoots until they are developed beyond the fruit to the extent of two joints where the space is limited, and four where there is room, pinching laterals below the bunch to one leaf. Above allow them to extend so as to insure an even spread of foliage over the space, but no more than can have exposure to light, afterwards keeping closely pinched. Ventilate early and freely, so as to insure short-jointed sturdy wood and thick leathery foliage. Avoid overwatering the border, as a saturated condition of the soil is not favourable to root action, but keep it moist, especially any top-dressing or light mulching, so as to encourage surface roots. If a few fresh droppings from the stables are sprinkled on the border occasionally some ammonia will be given off, and other manurial matter will enter the border from them at each watering.

Newly Planted Vines.—When the Vines take to the fresh soil they will indicate it by growing freely. To secure sturdy growth ventilate early, encouraging laterals in preference to mere elongation of the cane, letting all the growth remain that can have full exposure to light. Supernumeraries intended for next year's fruiting should have the laterals pinched at the first leaf, afterwards allowing them to make a few joints of growth, and pinching the cane at 8 to 9 feet of growth. Take every possible care of the leaves on the cane, not allowing them to be interfered with in any way by the laterals. Close early, with plenty of atmospheric moisture.

STRAWBERRIES IN POTS.—Forcing these plants in vineries and Peach houses is apt to transmit red spider to the Vines and Peach trees. This is a serious matter, and danger must be averted by removing infested plants to other quarters, where they can be properly syringed and duly supplied with water. Regard must also be had to a succession of plants, and crops that are ripening may be retarded in various ways for several days in case an extra supply is required for particular occasions. The expedients are turning the fruits away from the sun, shifting the plants to a north house, and removing the plants into an airy fruit room or cool shed after the fruits are fully ripe. Much can be done at this season in cold frames with judicious management. All plants that can be accommodated in cold or slightly heated pits should have their flower trusses thinned out to the requisite number. Place them near the glass, leaving room for a circulation of air between the glass and the leaves of the plants. The most forward plants from these structures can always be picked to take the places of those that are ripe and ripening. Liquid manure should be given to plants swelling their crops at every alternate watering, taking care not to give it too strong, and always tepid. Plants in span-roofed frames, intended to perfect their crops there, should have the pots plunged in ashes near the glass, yet sufficiently far from it to be clear in leaves and trusses, admitting air freely, and keeping a sharp look out for slugs.

TRADE CATALOGUES RECEIVED.

Messrs. G. Bunyard & Co., Maidstone.—*Herbaceous Plants, Pot Roses, Bedding Plants, Creepers, &c.*

Messrs. W. Cliban & Son, Oldfield Nurseries, Altrincham.—*Indoor and Outdoor Plants, Ferns, Roses, and Florists' Flowers.*

Messrs. Reid & Bornemann, Trewharry Road, Sydenham, London, S.E.—*Chrysanthemums, Pelargoniums, Dahlias, Begonias, Roses, &c.*

Herr Osear Tiefenthal, Wandsbek.—*General Plants (published in German).*

THE BEE-KEEPER.

APIARIAN NOTES.

THE APIARY.

SINCE the 10th of April my bees have been almost wholly confined to their hives. Heavy showers of snow fell on seven days in succession. The temperature was low, and the frost destroyed all flowers except Daffodils. The temperature on three successive mornings was as low as 17°, and the day register on the 16th 35°. Gooseberries are much injured, especially Warringtons and Whitesmiths—in fact none have escaped, but the Early Sulphurs appear to have suffered less than most of the reds. The bees, however, being kept within the hives have suffered less than if the weather had been less severe and occasional sunny intervals had lured them out to destruction. I hear of a number of hives ruined because of short supplies of food. Bees allowed to suffer now by want of food seldom recover from the check and become profitable.

COMB FOUNDATION.

As a rule the sooner personal discussions cease the better, but not before both sides of the question have been heard, and inaccuracies rectified. Mr. J. M. Hooker seems to boast a little about his experience and success on page 306, yet from his own statement I find I am his senior in bee-keeping, and though this is my fifty-second year of practice I do not claim superiority either over younger or older men. I am pleased, however, to know that I have instructed many in the art, if I am to believe the letters in my possession from Mr. C. N. Abbott and others, either asking for information or thanking me for it. I have also Mr. Abbott's request that I should write in his Journal on "How to make comb foundation."

I agree with Mr. Hooker that it supports an argument when quoting to state the book, year, and page, and had he been accurate in his article on page 306, April 12th, it would have saved this reply. He makes a great blunder when he says he visited me in 1876. It was in 1875, the year after I taught the bee-keeping world the art of making comb foundation as I made it then, and from 1862. He, in the presence of witnesses, said "comb foundation was a failure." This surprised me after the eulogiums that had been passed on it at the first Crystal Palace Show. I put a question to Mr. Hooker, and his answer revealed the cause of his failure with it, and I then put him right.

I remember perfectly well the stupid awards at the 1875 Show as well as the audacity of men undertaking to judge articles on which they had not a full knowledge. The first prize award for foundation on that occasion was a blunder. The winner was a pupil of my own, and was, by the queer verdict, surprised. I did not compete with foundation in 1877, as I did not think it worth my while doing so against my pupils; but on hearing so much about Mr. Raitt's foundation I competed in 1878, and won the first prize easily. Mr. Hooker says Mr. Alfred Neighbour accompanied him in his call on me. That is not correct, as Mr. Neighbour did not come till 1877.

I have no recollection whatever of giving Mr. Hooker bees,* and I had none at the Show to which he alludes, and I protest against the accusation that the wax was adulterated. It was made from the combs of my own apiary. The cause of his bees rejecting it may be found in the construction of the super. I have known samples of pure wax pronounced to be adulterated with paraffin by clever experts.

Mr. Hooker cannot, I think, be ignorant of the fact that there have been no less than four patents taken out within the past few years by different persons for what I made upwards of thirty years since.—A LANARKSHIRE BEE-KEEPER.

ETHICS IN CONTROVERSY.

In the Journal for April 21st, page 306, Mr. Hooker says:—"In recommending anything to bee-keepers I know only their interest. I have no axe of my own to grind, and do not desire to raise a controversy as a means of advertising any particular article or kind of bee, or assisting any other persons to prop up anything they have written." I do not know why your correspondent should advertise himself as being peculiar in that respect, unless it is to suggest that other writers are not actuated by equally honourable motives. A man can serve his fellows in many ways; making

them a better article than they already have is one way, or if he can sell them a better bee it is his duty to do so. Mr. Hooker should remember that it is not age which gives authority, or having "friends at Court," and unless a person's own work will bear criticism he has no right to dictate, no matter what his age may be.—A HALLAMSHIRE BEE-KEEPER.

TO CORRESPONDENTS

* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Chemical Manures (R. C. L.).—We often wonder why specified kinds of the most important chemical manures are not more generally advertised; however, the majority of those you name are mentioned in the advertisement of the Horticultural Supply Co., Old Shot Tower Wharf, London, S.E., and no doubt all the kinds can be supplied.

Lobelias for Edging (York).—When we consider the great divergence in the tastes of individuals we naturally hesitate to characterise any variety of any kind of plant as absolutely the best, and thus tacitly stamp all other varieties as inferior. If we wished an edging of dark blue Lobelia we could provide it to our satisfaction with *pumila magnifica*.

Red Spider on Gooseberry Bushes (J. W.).—Applying clear lime water in the form of spray to the under sides of the leaves through a bent nozzle will check if not destroy the pest; or it may, perhaps, be more convenient to you to apply a solution made by dissolving soft-soap at the rate of 1 to 2 ozs. in a gallon of hot water, and well mixing a small handful of sulphur in a pail or pot holding about 4 gallons of the solution. Carbolic softsoap is good to use for this purpose.

Professional Flower Dressers (Exhibitor).—While we agree with you that it is desirable that persons who win prizes for flowers should not only grow their own but prepare them for the shows, we also know that "experts" are employed by cultivators to dress Auriculas, Carnations, and Chrysanthemums for staging. Some of these experts are paid for their skill in floral millinery, others give gratuitous friendly assistance. One able dresser is said to first trim up the flowers of his friends and then assist in judging them. We have not the least doubt that he acts with the strictest integrity, but the example thus set is not altogether approved, and, as may be easily understood, opens the door to possible abuse.

Violets in Pits (Violet).—Thousands of Violets might be grown in the length of frames you describe, and some persons would realise a substantial sum by the sale of the flowers. The Marie Louise would probably be the most profitable of those you mention, and the single Russian the least. It is of the first importance to have stout young plants. These are provided by establishing the best procurable offsets now in rich soil, supporting them well in the summer, pinching the runners, and preventing attacks by red spider. They may be treated practically the same as young Strawberry plants, and if grown about 15 inches apart, with sturdy foliage and bold crowns, blooms would be afforded in profusion during the winter and early spring. They are best planted in frames as soon as they can be cleared in September, but not closing the sashes. Very good results have followed October planting, but the sooner they are established in the frames in September the better will be the crop of flowers.

Improving Lawn (W. G.).—You are rather late in your application, and appear to have overlooked instructions that have been previously given. If you rake out the weeds as well as you can, also take advantage of favourable weather for scratching the surface of the ground well with a sharp toothed rake, then sow lawn seeds freely and roll them in, a good number will grow; but more would do so if a film of soil could be sifted over them. If you describe the extent of lawn to a vendor of seeds and ask for the proper quantity, they will be sent. Also we advise you to sow a mixture of superphosphate of lime and

* The word "bees" should have been printed "box" in the article referred to.

nitrate of soda on the lawn, two parts of the former to one of the latter, at the rate of 3 ozs. to the square yard. The sooner this is done the better, and the seeds sown also. Scattering the grass as it is cut in summer on clean lawns is serviceable to many; but we suspect that mowing without the box indiscriminately has often been the means of sowing seeds that would have been better collected in the box and taken away. Thought requires to be exercised in this matter. A dressing of soot and wood ashes is good for lawns. There is no reason why yours should not be improved, though it would have been better to have taken the requisite steps sooner, especially should a period of dry weather ensue.

Salt for Land and Crops—Applying Kainit (*Constant Reader*).—Salt acts chemically and mechanically upon the land, producing changes therein which are beneficial to crops. It is destructive of insects and slugs, and enables cereals to resist the attacks of parasitic fungi by strengthening the straw. It has been usefully applied to dry sandy soils, aiding them to retain moisture. As a manure salt acts mainly by hastening the decomposition of organic matter, "fixing" ammonia by converting it into ammonium chloride, and it is chiefly used for mixing with manure, vegetable matter, and "artificial." In compost it should be applied at the rate of 4 to 5 cwt. per acre. Household salt is not so good for agricultural purposes as "land" salt. The ingredients of salt are sodium and chlorine = sodium chloride (common salt, Na.Cl.). Kainit is best applied to soils derived from limestone or chalk in autumn, and to other soils it may be applied very early in spring. If applied late, and dry weather follows, it simply remains practically unused in the land for months. One of our correspondents, who knows what he is talking about, says, "There appears to be a potash craze nowadays, and a good deal of money that is spent on potash salts is money thrown away." We suspect he is right. Many soils contain sufficient potash for certain crops; others do not, and then applications as above suggested are beneficial.

Converting Old Pasture into Orchard (*A. M.*).—The first consideration is the drainage. If water lodge within 4 feet of the surface the land must be efficiently drained. Then it should be trenched 2 feet deep, but not bringing any stubborn soil to the surface, and not burying the turf deeper than 6 inches. The bottom of each trench should be loosened and left where it is. If the soil is good to a depth of 18 inches or 2 feet, the turf may be mixed evenly through the whole, and this will ensure the most even combination of the soil constituents. Every particle of root belonging to the old trees must be removed, otherwise they may endanger the roots of the trees by fostering fungi. When the ground has been trenched it may be dressed with lime, unless of a calcareous nature, using six tons on the three-quarter acre. Have it fresh from the kiln, place it in small convenient heaps, which cover with soil, and when the lime has fallen but is still hot spread it evenly on the land. It need only be mixed with the top 6 inches, for it will find its way down fast enough. Your soil, being a yellow loam over unctuous clay, will hardly need a dressing of potash for ordinary crops, but having been an orchard at some time it may have had its store largely drawn upon. Plums require lime, potash, and iron, with lessened amounts of magnesia and soda. The lime has been provided for, and you may apply 2 cwt. of kainit with $\frac{1}{2}$ cwt. of sulphate of iron, distributing evenly before planting. After planting spread manure on the ground from the stem of each tree a little farther outwards than the roots extend, leaving it there, and covering with fine soil in spring to prevent its drying. That is the way we advise every tree or bush to be manured, using none in planting unless thoroughly decayed or mixed well with some rich, well-blended compost. This will keep the roots near the surface and encourage a fibrous formation from the start. The vacant space can be manured and cropped with roots, or other crops not soil-exhausting or interfering with the roots of the fruit trees, and this will bring the soil into good condition for the trees, both through the manuring and the change of crop. Elton is a good Cherry for heavy soil. Werder's Early Black is also a free grower and bearer.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (*W. C. & Sons*).—The Apple appears to be a sound handsome specimen of the New Northern Greening. (*L. F.*).—The Pear is Beurré Rance; the Apple Cockle's Pippin.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of seedling plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*J. W.*).—The flower was much crushed, but it is probably *Rhododendron Gibsoni*.

COVENT GARDEN MARKET.—APRIL 27TH.

BUSINESS somewhat improving, but prices remain unaltered.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, $\frac{1}{2}$ -sieve	1	0	to	5	0	Grapes].. ..	0	0	to	0	0
Apples, Canada and Nova Scotia, per barrel ..	12	0	20	0	" New, per lb. ..	4	0	5	0		
Apples, Tasmanian, per case.. ..	10	0	15	0	Lemons, case	15	0	2	0		
Cobs, Kent, per 100 lbs. ..	0	0	0	0	Oranges, per 100	4	0	9	0		
					St. Michael Pines, each ..	3	0	6	0		
					Strawberries, per lb. ..	2	0	4	0		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	2	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5		
Carrots, bunch	0	4	0	0	Parsley, dozen bunches	2	0	3	0		
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0		
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	3	0		
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6		
Cucumbers, dozen	4	0	6	0	Scorzonera, bundle	1	6	0	0		
Endive, dozen	1	3	1	6	Seakale, per basket	1	6	1	9		
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0		
Leeks, bunch	0	2	0	0	Spinach, bushel	2	0	0	0		
Lettuce, dozen	1	3	1	9	Tomatoes, per lb.	0	4	1	9		
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	0	0	4		

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	4	0	Maideuhair Fern, dozen bunches	4	0	to	8	0
Bouvardias, bunch	0	6	1	0	Marguerites, 12 bunches ..	3	0	4	0		
Carnations, 12 blooms ..	1	0	3	0	Mignouette, 12 bunches ..	2	0	6	0		
Carnations, Malmaison, 12 blooms	3	0	6	0	Mimosa or Acacia (French) per bunch	1	6	2	0		
Cineraria, dozen bunches ..	6	0	9	0	Narciss (various), Scilly dozen bunches.. .. .	2	0	4	0		
Cyclamen, dozen blooms ..	0	3	0	6	Pelargoniums, 12 bunches ..	6	0	9	0		
Daffodils (double), dozen bunches	2	0	4	0	„ scarlet, 12 bunches ..	4	0	6	0		
Daffodils (single), doz. bnch.	3	0	6	0	Primula (double) 12 sprays	0	6	0	9		
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	0	2	0		
Euphorbia jacquiniæflora dozen sprays	2	0	3	0	„ Red, per doz. blooms..	2	0	4	0		
Freesia, dozen bunches ..	2	0	4	0	„ Tea, white, dozen ..	1	0	3	0		
Gardenias, per dozen ..	2	0	4	0	„ Yellow, dozen	2	0	6	0		
Hyacinths, dozen spikes ..	3	0	4	0	Tuberose, 12 blooms.. ..	1	0	2	0		
„ Dutch, per box ..	1	6	4	0	Tulips, dozen blooms.. ..	0	6	1	0		
Lilium longiflorum 12 blooms	3	0	6	0	White Lilac (French) per bunch.. .. .	4	0	5	0		
Lilium (various) dozen blooms	1	0	3	0	Violet Parme, small bunches	1	6	2	0		
Lily of the Valley, dozen sprays	0	6	0	10	„ English, doz. bunch.	1	0	1	6		
					Wallflowers, dozen bunches	2	0	4	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Hyaciuths, per dozen ..	6	0	to	9	0
Arum Lilies, per dozen ..	6	0	9	0	Lilac, each	2	0	3	6		
Azalea, per plant	2	0	3	0	Lily of the Valley, per pot	1	0	1	6		
Cineraria, per dozen ..	6	0	9	0	Lycopodiums, per dozen ..	3	0	4	0		
Cupressus, large plants, each	3	0	5	0	Marguerite Daisy, dozen ..	6	0	12	0		
Dracæna terminalis, dozen	14	0	42	0	Mignonette, per dozen ..	6	0	12	0		
" viridis, dozen	12	0	24	0	Musk, per dozen	4	0	6	0		
Erica various, per dozen ..	12	0	24	0	Myrtles, dozen	6	0	9	0		
" Willmoreana, dozen ..	12	0	18	0	Palms, in var., each	1	0	15	0		
Euonymus, var., dozen ..	6	0	18	0	" (specimens)	21	0	63	0		
Evergreens, in var., dozen	6	0	24	0	Pelargoniums, scarlet, doz.	4	0	6	0		
Ferus, in variety, dozen ..	4	0	18	0	" per dozen	9	0	18	0		
Ficus elastica, each	1	6	5	0	Rhodanthes, per dozen ..	6	0	8	0		
Foliage plants, var., each ..	2	0	10	0	Saxifraga pyramidalis ..	1	6	2	0		
Genista, per dozen	6	0	10	0	Spiræa, per dozen	8	0	12	0		

Bedding Plants in variety in pots and in boxes.



SILAGE.

Is silage making way? It is, and it is not. It is at farms where it has had a fair trial, and where it was brought into use with caution; it is not among farmers generally—prejudice, a lack of energy, enterprise, and common sense being the cause. Of this there can be no doubt, evidence of it is to be had everywhere, and it will again be afforded this year if we have another wet haysel. Last year thousands of pounds were wasted in harvesting inferior hay; the same thing will happen again and yet again. Very much of the grass was left uncut long after the seed had ripened and fallen off, because the weather was so unsettled. Hay must be had at any cost. There was no thought of ensilage, but only of hay-making, which went on long after the corn harvest was in full swing. Well, the hay was made and most of it has been used

to keep bare life in the cattle, for the long hard winter has taxed the graziers' resources severely. It has been a hard struggle to very little purpose. So lean are cows and store beasts that it will require months of plenty to bring them into even fair condition. Most of the hay made was unworthy of the name; the bulk of it was mere litter from which most of the nutritive properties had vanished long before it was mown. How very different would the result have been had it been mown when the grass was in flower and made into silage; all the vexatious delay and most of the costly expenditure would have been avoided. The showery weather, instead of being regarded as a curse, would have been hailed as a positive blessing, affording an aftermath of singular abundance in which the cows would have revelled to their own contentment and their owner's profit.

It has been laid down by a high authority that 4 tons of silage are about equal to 1 ton of hay. By this statement hay of the highest quality is indicated, and we regard our silage as decidedly superior to most of the hay of last year. In really fine bright weather by all means make hay. Our last fine haysel was in 1889, when we made most of the grass into hay. In the wet summers of 1890 and 1891 a small quantity of hay and much silage was made simply because it was the best thing to do. Cheap food must be had if live stock is to answer. To be worthy of the term it must cost little and be highly nutritious, it is then indeed cheap. Hay that is much washed by rain during the making is on the contrary most expensive and decidedly innutritious. In no sense can it be regarded as either useful or cheap. If it were the only thing to do then the grazier would deserve pity, but if he blindly persists in making bad hay at a ruinous price when he might make excellent silage cheaply his practice is contemptible, and it is impossible either to pity him or to help him to do better.

Ensilage at first appeared likely to prove costly from the apparent necessity for building silos and for cutting up the fodder beforehand. Silage stacks were next tried, and found to answer well; then came silage heaps, which also answer. The process followed at Downton College Farm is to make a heap with sloping ends, just like a manure heap, so that the grass can be carted right on to the heap. Care is taken to spread the fodder evenly, to keep it well trampled, and pressed down by a heavy roller, more and more being carted upon it as the heap settles—say at intervals of about three days. The ends are then cut off and thrown upon the top; when finished it is about 8 feet high. Upon this heap a hayrick is built, and thatched in the usual way. The silage becomes very solid, a cubic foot of it weighing from 56 to 60 lbs. Professor Wrightson, the head of the College, says every year he is more convinced of the importance of silage, and those who have given ensilage a fair trial must prize it as an admirable system, and one likely to do much to carry on farming at a profit. The only waste from mould is in a few inches of the outside of the heap. This is stated to be the case also at Underley, the estate of Lord Bective, in Westmoreland, where silage stacks are made just like hayricks, without pressure, and are said to keep good for two or three years. This is an outcome of a series of trials, the tendency of which is to simplify and cheapen a process of fodder storage of the utmost importance to farmers everywhere, but especially so in districts having a high average rainfall.

To all who may be induced to begin ensilage this season we say, Let your trial be thorough. Let your first stack be large and substantial; apply pressure and you will be safe. Do not attempt too much at first, but set about the work in a practical manner, not necessarily using the best grass, or any grass at all. "Seeds" or tares answer equally well, so does any coarse herbage, only it should not be forgotten that quality tells equally in silage as in hay, and it is probably owing to the use of inferior herbage that silage has had a low analysis. It must be so, because

nothing is lost in the process of ensilage, only anything has been thought good enough for the purpose. Be cautious in using it; first mixing a little with other food, adding more as the taste for it is acquired, there will then be no difficulty, and it may be used for horses, cows, store cattle, ewes, and lambs with excellent results. When its full value comes to be realised it will supersede roots and enable the farmer to avoid altogether the heavy outlay involved in the cultivation of that costly crop. With ensilage turned to full account, and a thorough cultivation of permanent pasture and all other forage crops, the provident farmer would escape most of the heavy losses which now press so hardly upon him.

WORK ON THE HOME FARM.

Hoeing is being pushed on among the Wheat, of which the plant is so thin that weeds are likely to prove more troublesome than usual. No attempt has been made to sow spring Beans, as the season was so advanced before this was possible that a full crop was out of the question. Spring Tares, Italian Rye Grass, and Oats are the extra crops, which will be turned to account either for use while green or for ensilage. We like to have, and intend always having in future, at least half a dozen stacks of fodder beyond our visible or prospective requirements in March. Hay is always a saleable article, silage can invariably be turned to account for home use, and the root crop can be curtailed without a doubt of having plenty of food to carry us through the longest winter.

We are now quite certain to have a large quantity of Oat straw for next winter, as well as plenty of home-grown corn. Now is the time to have these things in mind, so as to make sure of a full supply of home-grown food all the year round. So many graziers have run short of food that the price of hay keeps advancing, and we see much hay sold by auction at every market. Grass-keeping lets well, really good pasture still realising a rent of from £2 to £3 10s. per acre. We have no doubt of the maintenance of such prices wherever there is a local demand for milk, or where dairy produce can be sold profitably. The long distance from which it answers to send milk to London proves this. Not only is dairy farming bound to flourish, but a vast improvement is probable.

Much good may be done to neglected pasture during the present showery weather by sowing broadcast upon it a hundredweight or two per acre of nitrate of soda. This is not to be regarded as an ordinary dressing, but only a means of making the best of things for the present season. It is a hint which many a home farmer may be glad of, as we frequently have beginners anxious to do their best at a loss what to do with poor pasture. In such cases it is well to ignore special rules, and to rather seek for special means. To all such "emergency men" we say, Keep a stock of manures by you, and if you have no manure store, run up one at once. Take care to have a dry damp-proof concrete floor, as manurial salts are susceptible of damp. You will then be able to take advantage of any showery weather, and remember nitrate of soda does good even at midsummer in wet weather. By using it judiciously you may set any pasture growing freely in a fortnight, and if you get a few hours' rain after the hay is saved just rouse up the aftermath with a slight dressing, and raise the milk yield a little.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	April.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
Sunday ..	17	29.734	39.6	35.6	N.W.	41.6	47.9	28.2	87.3	21.7	0.043
Monday ..	18	30.054	41.7	37.8	N.W.	41.3	53.2	30.2	99.3	26.3	—
Tuesday ..	19	30.385	43.1	37.9	N.E.	41.9	53.0	30.3	103.6	25.2	—
Wednesday	20	30.387	46.9	41.3	S.W.	42.8	54.7	33.2	83.9	31.3	0.158
Thursday ..	21	30.127	54.3	50.3	N.W.	43.9	63.0	45.9	100.9	43.9	—
Friday ..	22	30.267	57.2	54.8	W.	46.2	69.4	49.1	118.7	41.9	—
Saturday ..	23	30.456	55.0	47.9	N.	48.0	66.8	41.9	112.7	33.6	—
		30.201	48.3	43.7		43.7	58.3	37.7	100.9	32.0	0.201

REMARKS.

17th.—Generally sunny, but sprinkle of snow between 11 A.M. and noon, and in the evening sufficient to cover the ground.
 18th.—Cloudless early, and bright sunshine all day; a little cloud in evening.
 19th.—Bright sunshine in morning; cloudy at times in afternoon.
 20th.—Overcast, with occasional spots of rain during the day, wet evening and night.
 21st.—Overcast till nearly 9 A.M., and at times during the day, but much sunshine.
 22nd.—Fine, warm, and sunny.
 23rd.—Warm and sunny throughout.
 Generally fine sharp frosts at beginning of week, warmer afterwards, and on the whole near the average.—G. J. SYMONS.



FLOWERING TREES AND SHRUBS.

SPRING has now burst upon us with all its beauty. Deciduous trees and shrubs are rapidly unfolding their leaves, and the various tints of green cannot fail to interest the most callous observer. Evergreen plants, too, are throwing off their characteristic sombre appearance, assuming in many cases a more pleasing garb in the shape of beautiful flowers. Then, again, thousands of fruit trees are becoming laden with blossom, which, combined with the myriads of flowers of the undergrowth, form charming pictures in the landscape.

There is a multitude of flowering trees and shrubs, and the majority of them bloom in May and June. The present moment is, therefore, a fitting time for reflection on their utility. Do gardeners, as a rule, give the matter sufficient attention? I think not, and possibly a few other readers may agree with me. There are undoubtedly notable exceptions, but sweeping as the statement may appear, it can be truthfully said that in numbers of gardens, pleasure grounds, and parks in this country the flowering trees and shrubs are sadly neglected. In other words, they are left to take care of themselves. A typical shrubbery in any garden will corroborate this assertion. No systematic method of pruning or top-dressing is adopted, and the result is well known. Pruning flowering shrubs in the proper manner appears, unfortunately, to be an unknown operation to many persons. They either leave the bushes alone or cut off the young shoots, which would have produced flowers had they been retained. To be fair, however, this system is more frequently adopted in public gardens than private establishments. It is done to give the shrubs a so-called "neat" appearance.

Then as regards planting, who will deny that the best of the flowering trees and shrubs are oftentimes found struggling for existence in a mixed and crowded shrubbery? This can be seen in almost any garden. Gardeners and others responsible for the embellishment of pleasure grounds should study the matter more closely. There are numerous shrubs of a compact habit—such as the Weigelas—that might with advantage be planted in groups in beds on the lawn, and the same applies to various trees. Their beauty is then seen to the fullest advantage, instead of, as is too often the case, "hid under a bushel." Many examples of neglect in this direction might be given, but as space is valuable a brief review of some of the best of the innumerable flowering trees and shrubs must suffice, and it may be of service to young readers.

Among flowering trees the Magnolias occupy a prominent position, and are deserving of extended culture. When in full bloom they are really beautiful. Take, for example, *M. conspicua*, commonly known as the Yulan. Possibly one of the finest specimens of this grand tree in the country is in the grounds at Gunnersbury House, Acton, and when covered with its pure white Water Lily-like flowers it forms quite a picture, as was fully evidenced by the photograph of it shown by Mr. Hudson at a recent meeting of the Royal Horticultural Society. The tree in question is about 30 feet in height, and as much through the branches. Would that a similar specimen adorned every lawn in the warmer parts of England. There are several varieties of this species, some of which bear tinted flowers, but all are very effective. *M. stellata* is of dwarfer growth, and the flowers are much smaller, but they are

none the less beautiful. This, too, makes a charming display during April and May, as also would the rose-coloured form recently exhibited at the Drill Hall by Messrs. J. Veitch & Sons. There are other Magnolias, including the beautiful *M. Lenné*, which are highly effective in spring.

Common as it is, the Laburnum is always welcome with its lovely golden racemes, which make such a fine show during the early days of summer. There are several varieties of this, however—for instance, *Parkesi*, *Giganteum*, and *Watereri*—which are much better than the type. The Thorns, too, must be regarded as being among the most beautiful flowering trees, and should be extensively planted in pleasure grounds and parks. Bold clumps of them are highly imposing during May and June, and a few specimens of the choicer kinds, such as Paul's Double Scarlet and *Multiplex* (double white) are worthy of a place on the lawn. The same may justly be said of the Snowy *Mespilus*, which is a gem among flowering trees. It should, however, be given a sunny position in order that the wood may become well ripened, without which there will be but little bloom. The numerous Cherries, double and single, are also well known for their attractiveness at this time of the year, but they are rarely planted with sufficient discretion for ornamental purposes in gardens.

For early flowering the various Almonds are exceedingly useful, and during February frequently make a most charming display. There are many varieties of them with double and single flowers, but being tolerably well known it is needless to individualise them. One variety, however, is deserving of notice on account of its early flowering, and that is *Amygdalus Davidiana alba*. Flowering branches of this were shown by Messrs. J. Veitch & Sons at the February meeting of the Royal Horticultural Society, and again in March, when it was certificated. The Rose Acacia (*Robinia hispida*) is another beautiful flowering tree, the long racemes of rose-pink flowers being very effective. It makes a choice lawn tree, as also does *R. viscosa*. Both, however, do best in a rather sheltered position. As specimen trees the white and red-flowered Horse Chestnuts are perhaps unrivalled, and it is a wonder that they are not more extensively planted in ornamental grounds. Many of the fruit trees, such as Apples and Pears, are noteworthy for their attractiveness, and should certainly be more conspicuous in pleasure grounds than they are at present.

With regard to flowering shrubs these are even more numerous than the trees, and being dwarfer in growth they are better adapted for grouping in small gardens. Rhododendrons are too well known to need a lengthy dissertation here, though it may be said that where a suitable place can be found they should be extensively planted. They are undoubtedly the best of flowering shrubs, and being evergreen are valuable as screens all the year round. For forming clumps on the lawn the Ghent Azaleas are exceedingly useful, and on the margins of shrubberies, too, these might be extensively planted. Then, for hardiness and making a brilliant display of bloom in May few shrubs can surpass the Weigelas, which are familiar to most gardeners. These, perhaps, are the best flowering shrubs that can be planted in suburban gardens, where if given a sunny position they will flower profusely. The red flowering Currant (*Ribes sanguineum*) is another capital shrub for town gardens, and being of a hardy and robust constitution it will also thrive well in almost any soil or position. There is a variety of this named *atro-rubens*, which should be planted on choice shrubberies in preference to the type, and as a companion to it the white-flowered variety *album* is well worth planting.

When liberally treated the Guelder Rose (*Viburnum Opulus*) is very effective with its white blossoms, which resemble drooping snowballs. *Viburnum plicatum*, a Japanese species, is more hardy than is generally supposed, and should certainly be found amongst all choice shrubs. The Lilacs are well known for their beauty, as also is the Mock Orange (*Philadelphus coronarius*), which grows into a handsome bush when given proper attention. Many people

prune this shrub in the winter, which is a mistake, inasmuch as it flowers on the shoots made the previous year. The later variety, *P. Gordonianus*, has still finer flowers. Immediately after blooming is the proper time to prune this and various other flowering shrubs. On a dry soil in a warm position the double *Deutzia* produces masses of white flowers in June, and the Brooms are very effective in similar positions. *Cydonia japonica*, too, is a desirable shrub, as also are *Spiræa confusa* and *S. Thunbergi*. The old-fashioned *Kerria japonica* fl.-pl., cannot be despised, nor *Forsythia suspensa*, *Exochorda grandiflora*, *Daphne Mezereum*, and others too numerous to mention.—C. C.

SETTING GRAPES.

LATE Grapes are this year very backward, at least they are in the midlands and the north; and although I have had no opportunity of judging how far they have advanced in the southern counties, I trust my notes on this subject are early enough to be of service to many cultivators who desire information.

A great variety of opinion exists among Grape growers as to the best means to be used to secure a good set. Without doubt numbers who have their Vines in good condition experience but little difficulty in securing a good set with many varieties, and where failures do occur it may often be traced to weak and debilitated Vines, or to a crowded state of the young shoots. All kinds of Grapes set the better in cases where a fair amount of sunshine reaches the bunches when in flower. This is particularly the case with Muscats, and this fact I believe accounts for many partial failures among cultivators whose Vines are in excellent health, but who make the mistake of allowing the bunches to be too much shaded by the Vine leaves during the flowering stage. It is a capital plan to tie back a few of the leaves around the best bunches of any varieties which are shy setters, as nothing is more disappointing than to find bunches of great size and fine proportions rendered useless or unsightly by being only imperfectly set.

I have at various times had to deal with Muscats under widely different circumstances, and in every instance I found comparatively high temperatures were conducive to the best results, 70° to 75° by night with a rise of 5° from heat on dull days should be aimed at. In cases where such high temperatures have not succeeded the reason may invariably be found in the fact that ventilation is not attended to early enough in bright weather or during bursts of sunshine, consequently the leaves show great signs of distress; this evil is aggravated by keeping the atmosphere of the house too dry. By all means have a dry atmosphere during the middle of the day so that the pollen may be freely distributed, but to keep up high temperatures and a dry atmosphere both night and day is not necessary, and is, moreover, prejudicial to the general health of the Vines. The floors and stages of the vinery should be damped down about 9 A.M. and again in the afternoon at 3 or 4 o'clock. So long as damping is not done at mid-day no fear need be entertained about having the pollen in the right condition to effect fertilisation. Every lateral carrying a bunch should be sharply tapped with a stick at noon, when the pollen may be seen flying in clouds. The best set of Muscats I have seen was accomplished by these means. I however, strongly advise those who have any difficulty in setting this fine Grape to try syringing the bunches at mid-day. This I believe to be more effectual than passing a rabbit's tail over them, though many are too timorous to try it, though they might soon satisfy themselves as to its efficacy or otherwise, in their own case, by adopting that practice with a single Vine or a few bunches. Large bunches are often difficult to set at the points; the best course to follow with these is to draw the hand lightly down that part of the bunch once or twice daily.

Mrs. Pince is a fine Grape which generally appears to set well, but subsequent behaviour often shows that the berries are only imperfectly fertilised, as they fail to swell to their normal size. When living at Longford Castle, Salisbury, with Mr. Ward—who annually produces very fine bunches of this variety—the practice adopted was to pass a rabbit's tail over bunches of Gros Guillaume till it was thoroughly charged with pollen, the bunches of Mrs. Pince were then touched with the tail wherever the flowers were fully developed. Alnwick Seedling is a somewhat peculiar Grape, and unless special means are taken does not set well, as the anthers are sealed down by the capsules. These can be dislodged with the syringe or rabbit's tail, and the flowers fertilised with pollen of some other variety. Lady Downe's Seedling and Buckland Sweetwater are two other varieties which I have always found to require a little assistance to secure a perfect set. Passing the hand over the bunches is in each case productive of the best results. Madresfield Court requires no other assistance than shaking, except at the

points of the bunches, provided the latter are well exposed to light. Foster's Seedling is by many considered difficult to set, they therefore take the precaution to go over the bunches with the rabbit's tail. For several years I did not feel satisfied without following the same practice, but after trusting solely to shaking for one season, the result being a perfect set, no other plan has been followed since. Alicante, Gros Maroc, Gros Colman, Black Hamburgh, Golden Queen, and Trebbiano are all free setters. Gros Guillaume, when producing only medium-sized bunches, is a good setter too, but we always go over very large bunches with the rabbit's tail, as it is difficult to distribute the pollen to every part by other means. Mrs. Pearson (a Grape which should be more grown) requires the same treatment as the last-named variety.

Black Hamburgh, Buckland Sweetwater, Foster's Seedling, and Madresfield Court should have temperatures 10° less than those recommended for Muscats. The other varieties named ought to have a night temperature ranging between 65° and 70°, with a rise of 5° during the daytime. Throughout the flowering stage a chink of air should be left on both top and bottom of the house, except during cutting winds and night frosts, then the lights are best closed for a few hours.—H. DUNKIN.



NOTES AND COMMENTS.

"POPULARISING gardening," a pleasant phrase indeed, I thought, as I opened my Journal last week. It opens up visions of a future bright with blossom, when those who have nothing but forecourts, back yards, and window ledges to decorate shall have learned how to beautify them and gained contentment in the work. But this will not be all. I commence my series of occasional notes and comments on Orchids with the conviction that in every step which is taken in popularising gardening they will share. The fact may not be at first apparent, for it would be futile to hope and foolish to expect that every member of a holiday crowd is going to become a cultivator all at once; but there will be a gradual upward movement none the less, and the ranks of Orchid growers will be strengthened by the addition of many who have begun modestly and passed their novitiate in other branches of the art. To popularise gardening, therefore, is to popularise Orchid growing, and cultivators will rejoice to see support given to any movement that tends in this direction.

It is impossible to go here and there, into nurseries and private gardens, without recognising how widely Orchid-growing is spreading, and it is significant to note that the general papers give them attention now and then. They make ludicrous mistakes, of course, indulge in strange diversions in the way of spelling, and occasionally make a rapturous discovery of something or other that has become quite a venerable friend, but that is their little way in dealing with special matters, and must be treated indulgently. The main point is that they often succeed in arresting the attention of general readers, and awakening an interest in the flowers, and when that has been effected there is a natural gravitation towards journals (especially, let us hope, to a journal with a capital J) which make technicalities their business.

Friday afternoon proved to be very quiet at Protheroe and Morris's. The sales fluctuate a good deal in vitality. Sometimes matters rule extremely lively; there is, so to speak, considerable buoyancy about the proceedings, but on other occasions things are as dull as the proverbial ditchwater. The chief attraction was the sale of Messrs. Linden's two new Cattleyas, Rex and Alexandræ, while importations of *Cattleya Mossiæ chirguensis*, *C. speciosissima*, *C. amethystoglossa*, *Oncidium holochrysum*, *Rodriguezia Lindeni*, and *Odontoglossum (Cochlioda) Nötzlium* were also down for disposal in the catalogue. But none of these aroused very much interest, and all Mr. Protheroe's eloquence was unavailing when the chief item came on for attention.

Yes, the sale of *Cattleya Alexandræ* must be characterised as a decided "frost." Experts looked coldly upon it, and held aloof when the plants were placed upon the table. The third specimen offered went for 14 guineas and the fourth for 7 guineas, but subsequent lots failed to reach the reserve price, and as it was evident buyers were not there the remainder were passed. The

specimens bore out the description and the coloured plate exhibited so far as the habit and growth were concerned. The pseudo-bulbs are a foot or more in length, the leaves borne in twos and threes, oblong, lanceolate or narrowly elliptical. The flowers, which are likened to *C. Leopoldi* in the published description, with the colour of *C. elegans* Turneri and sometimes of *Lælia grandis tenebrosa*, are borne in rounded heads. The coloured plate indicates a colouring of bright carmine in the lip, and of brownish red, sometimes brightening into rosy red in the narrow, crimped sepals and petals. It is distinct and no doubt handsome, but it is clear that orchidists in this country intend to know more about it before they struggle for its possession.

Only a very mild sensation has been caused by *Cattleya Rex*, which Mons. J. Linden claims to have met with fifty years ago, but which the Belgian firm have only just imported. Some appeared to think that we were going to have a labiata-like stir, but this can only happen now and then. The specimens offered brought fair prices, averaging, perhaps, 6 guineas. One piece reached 8½. It is no doubt a handsome and desirable form, flowering in winter, but perhaps I should not be far wrong in classing it as a variety of labiata. The flowers are very large, the sepals and petals pure white, according to the coloured plate, but the former tinged with primrose-yellow according to Mr. O'Brien. The lip and throat of the flower appear to be very richly coloured with crimson, though not in one shade, and the former is edged with white. Blooms are better than coloured plates for giving a correct impression of a flower, but it may be safely prophesied that *C. Rex* will become popular.

Of *Cattleya Mossiæ chirguensis*, described as producing "very large flowers, sepals and petals blush, lip rich dark purple, beautifully veined with orange, margined with white," one plant fetched £2 2s. and another £2, but the remaining prices were lower. *Odontoglossum Nötzlium*, mentioned above, promises to be a useful addition to cool house Orchids. It flowers freely, and the colour—bright orange red—is distinct. A plant in bloom brought £1, but others were bought at very low prices. The greatest interest of the sale centred in a magnificent plant of *Cattleya Skinneri alba* in a 14 or 15-inch pot, and having about thirty-five growths. It was not the same property as the others. For this 55 guineas was reached.

A beautiful form of *Cattleya Skinneri* was exhibited by Sir William Marriott, Bart., The Down House, Blandford, at the last exhibition of the Royal Botanic Society, and was certificated. It was named *C. S. alba oculata*. The flower somewhat resembles the type in form, but the sepals and petals are pure glistening white, the lip faintly tinted with rose, the throat pale lemon, and the tube deep magenta. The clearness of the colouring was very noteworthy.

A small but admirably managed collection of Orchids is grown at Woodstock Park, near Sittingbourne. They are under the care of Mr. Dowdeswell. At the time of a recent visit Phaius Wallichii, having five grand spikes, *Odontoglossum Rossi majus*, *O. vexillarium rubrum*, *O. Roezli album*, *Dendrobium Findleyanum*, *D. Dalbousieanum*, *D. densiflorum*, *Cattleya Schroderæ*, *C. intermedia*, *Cypripedium barbatum* (a fine form), *C. caudatum*, *C. Hookeræ*, *C. Godefroyæ*, *C. Stonei*, and *C. Spiceranum* were noticed in admirable condition.

Amongst amateur Orchid growers the name of Mr. R. J. Measures has long held a prominent place. The completeness of his collections of certain kinds, and the readiness with which he supplies information concerning them, have enabled valuable information to be derived. The treasures of the Orchid houses in his Camberwell garden are altogether beyond description. All that is rarest and most beautiful has been sought after, classified with the utmost care, and cultivated under the most favourable conditions that the skill of man can devise. Mr. Measures' own love and knowledge of the flowers, which are admittedly great, are supplemented by the assistance of one of the ablest Orchid growers in England, for that the condition of the plants under his charge unmistakably stamps Mr. H. Simpkins to be. When it is recollected that the enormous difficulties of a town atmosphere, with its impurities and fogs, have to be contended with, the result strikes one as being such as no other adjective than marvellous adequately describes.

There is no show house in Mr. Measures' garden; the plants are flowered in the position that suits them best, and there is no doubt that this is much the wisest plan. But although the display of bloom is scattered through many houses it is none the less one of extreme beauty. Moreover, the plants are in the rudest health and

vigour. Vandas are magnificently grown, their condition vividly recalling Messrs. Williams's plants at Holloway, and *Cypripediums* are rich in numbers, beauty, and variety. With more space at my disposal in a future issue I will note a few of the special features of this wonderful collection.—NOVA.

SALE AT STAND HALL.

THE sale of the late Mr. Statter's Orchids now being conducted at Stand Hall, Whitefield, near Manchester, by Messrs. Protheroe and Morris, has so far resulted well, the total of the first day's sale being £1178. The following were some of the best prices realised:—*Dendrobium album*, £38 17s.; *Lælia elegans* Turneri Statteriana, £29 8s.; *L. Arnoldiana*, £47 5s.; *L. elegans blenheimense*, £47 5s.; *L. Philbrickiana*, £27 6s.; *L. elegans* Turneri, £54 12s.; *L. elegans prasiata*, £29 8s.; *L. anceps* Amesiana, £22 1s.; *Cattleya aurea* Statteriana, £21; *Lycaste Skinneri alba*, £29 8s.; and *Cattleya Trianæ* Leeana, £39 18s.

ODONTOGLOSSUM PLATYCHILUM.

At the meeting of the Royal Horticultural Society on March 22nd a new *Odontoglossum* was exhibited by R. J. Measures, Esq.,



FIG. 56.—ODONTOGLOSSUM PLATYCHILUM.

Cambridge Lodge, Camberwell (gardener, Mr. H. Simpkins), which attracted some attention, although it was not honoured by the Committee. It has since been named *platytilum* by Messrs. Weathers & Rolfe. The history of the plant, which is perhaps the only one in the country, is very short. It was purchased under the name of "*Odontoglossum species*" amongst some *Restrepias* at the sale of Mr. Lee's Orchids at Leatherhead, and had probably never flowered, or a name would most likely have been found for it. In habit of growth it recalls *Oncidium cucullatum*. Fig. 56 well indicates the form of the pseudo-bulbs and the character of the foliage. The flowers are of considerable beauty. The lip is

roughly heart-shaped, large, pure white, and profusely marked with rosy crimson spots, reddish brown at the base. The sepals and petals are small, slender, and pure white, two of the former being situated below the lip and shading it somewhat. They are marked with colour at the base.

This *Odontoglossum* adds a distinct and pleasing feature to the cool Orchid house.

VEITCH'S "MANUAL OF ORCHIDACEOUS PLANTS."

PART 8 of this excellent work has just been issued by Messrs. Veitch & Sons of Chelsea, and like its predecessors is noteworthy for careful description and admirable illustration. The greater part of it is devoted to *Oncidiums*, which are treated with great comprehensiveness, but considerable space is given to the *Miltonias*, while the part is completed by a consideration of the genera *Ada*, *Brassia*, *Gomeza*, *Ionopsis*, and *Ornithocephalus*. In a future issue fuller reference will be made to it.

THE SEAMY SIDE OF BULB GROWING.

THE title of this paper was suggested to me by the fact that just as I was starting to visit the bulb farms of Holland on the 17th inst., a telegram was placed in my hands containing these words: "Useless to come over. The blooms all destroyed by frost." This did not deter me from going; on the contrary, I was all the more anxious to see the damage and count the cost. Consequently, the morning of the 19th (Easter Monday) found me in the steam tram *en route* for the fields. Having left the "Garden of England" on Saturday night covered with a mantle of snow, I was prepared for the worst, and was surprised to find how gay the country looked from the cars. The trip by steam tram from Leiden to Haarlem, or *vice versa*, seems quite the recognised thing for the holiday people in Holland to undertake, and I can strongly recommend it to anyone who wishes to see the bulb fields in their glory. The line passes most of the principal bulb-growing districts, and traverses about twenty miles of country in two hours at the moderate cost of 10d. first-class. The view obtained is really wonderful. The whole land is not under cultivation, and between the villages the eye is refreshed by resting upon verdant meadows just now occupied by cows newly turned out in their spring clothing of blankets; but around the villages and in suitable sites we come across patches of brilliant colour covering 20 to 50 acres—Hyacinths red, white, and blue, Tulips of brilliant scarlet, and Daffodils in their golden glory. The visitor who takes this journey at the proper moment will not easily forget the sight, and will go away with a glorified vision and a sense of wonder as to where all the bulbs can possibly go; but for us there is other work to be done, and we must face the monotony of walking day by day over fields, which are filled in the main part with exactly the same kinds of bulbs, and which, from a distance at least, are as much alike as match beds in a carpet garden.

Our first care is to see the damage done by the frost, and although all looked so bright from the cars, we have not much difficulty in seeing how disastrous has been its effects on the blooms. Bed after bed has the greater part of the stems frozen, and the bloom spikes hanging broken in the middle, the head resting upon the soil and foliage. Strange to say the hardy blues are most affected, and it is difficult to find a good spike of *Marie*, *Mimosa*, *Leonidas*, or even the late flowering *King of the Blues*; whilst nearly all the reds and whites have lost their colour (I don't know if it be a "bull" to say a white flower has lost its colour, but how shall we otherwise express it?) to such an extent that even their owners find it difficult to recognise them. Fortunately the foliage is in most districts quite uninjured so far, and disappointing as it must be to growers to have their show cut off prematurely, especially if they are sellers of cut blooms, the well being of the bulbs is in no way affected so long as the flowers are promptly cut off; but if they lie upon the foliage long, and especially if rain comes on at the time, the foliage becomes spotted and spoilt. Every grower knows this, but in Holland, as elsewhere, there are growers and growers. I shall endeavour to point out the difference in their procedure. The careful man has every available hand at work on Tuesday after the holiday, and sees that the stalks that are frozen are cut below the point of damage, so that the stem does not decay into the heart of the bulb. The careless grower takes little heed of these matters, and consequently his bulbs are second-rate or worthless. Then again, the grower has to contend with the "new disease," which so far no one in Holland seems to have learned the cause of, but which the careful grower combats by immediately lifting and destroying every bulb affected; whilst his careless neighbour lets all grow together until the harvest, and sends the product resulting to auction.

Perhaps one-half of the bulbs grown in Holland are the

property of small farmers, who purchase a few and work up a stock as a sort of nest-egg for a son or dower for a daughter. In course of years these come to market, are bought up by the wholesale man, and realise a handsome sum, but alas! even here there is a seamy side. A few years ago one of these men had a very fine stock of a certain Tulip, and in a season when they were greatly in demand was offered 10s. a hundred for them on the spot, but no, he would not sell before his time. During the ensuing winter there was a very excessive rainfall, his land was flooded, and out of his thousands of bulbs all that remained to him were a few which could have been placed in a soup plate.

Every season seems to bring some trial to the bulb grower. Last year it was the frost, which injured the bulbs to such an extent that orders could not in many cases be filled, whilst at the same time thirty or forty tons a week were being sold by auction in London alone. No wonder that the outcry is loud and bitter this season about bulbs flowering badly. This year the Daffodils have taken the disease, and acres of the spurious and other types will have to be dug in. Apart from all this there is the increasing competition from growers who are using cheaper land and less manure to produce a low-priced article. The best Hyacinth land commands from £600 to £1000 per acre, whilst inferior land, but still capable of growing bulbs, is sold at £200 per acre. These figures should convince the most obstinate that all Hyacinths are not of equal quality, and that regardless of the extra care and attention bestowed by some growers upon their bulbs, the land used is an important factor; yet, strange to say, many growers complain that the merchants in this and other countries are prone to buy the cheap stuff and neglect the good. We know that just now England is enthralled by a mania for something cheap—i.e., low-priced, and I suppose other countries are in the same condition.

In spite of all this the best growers seem to have little to complain of. Last year it was with the utmost difficulty that they executed all their orders, and the stocks of saleable bulbs left over are, in comparison to the numbers grown, ridiculously small. Some good old houses seem to be left out of the race. There were two sales advertised for Easter—one firm retiring for well-earned repose, the other joining the ranks (after selling the best stock) of the retailers. That the best growers do not fear a decline in the trade is apparent from the fact that large fields are every year being added to the ground already under bulbs. In one case 30 acres, in another 22, were in course of preparation this spring, not to mention smaller pieces. It must not be forgotten that in addition to the prime cost of the land a very large sum (often £100 per acre) is spent in levelling the land by taking off all the surface soil, so as to lower the level of the whole field to a certain height above the water line; then the soil is trenched from 3 to 6 feet deep, taking out the hard bed of peat usually found under the surface soil, and which prevents the free penetration of rain in wet weather, and the rising by capillary attraction of moisture in times of drought. Nor are they suffering their stocks to diminish. In the grounds of one grower I saw 1½ acre of two-year Hyacinths, the stock upon which numbered over 3,000,000 bulbs, and a similar size piece of one year had a still larger number of occupants. Where do they all go to? is the question which at once arises to the visitor. Let us not forget that of the stock seen in the fields certainly not more than a fifth part can be saleable in any one year, and a still smaller proportion are first-class bulbs. Again, Germany, Russia, Sweden, and Denmark give increasing orders; whilst America orders in the characteristic American style. I heard of one firm that had placed an order for 140,000 Double Daffodils (*Telamonius plenus*), and their orders for Tulips are also on a gigantic scale. The English trade is also growing fast, in spite of the fact that our close proximity makes us the easiest market for the cut flowers and inferior bulbs which are sent to auction.

I think these few rough notes may perhaps be sufficient to answer the oft-repeated question, "Why do we not grow our own bulbs?" Many things we do grow with equal and even greater success than our Dutch friends, but without suitable land, and with labour which is not content to work from 5 A.M. to 8 P.M. for the sum of 2s. 6d. a-day, I think we may rest contented that the Dutchman shall continue to supply the rest of the world with Hyacinths.—A. H. PEARSON.

DOING UP HARDY FLOWER BORDERS.

THERE are, broadly speaking, two methods of doing up the borders devoted to hardy plants—the one to dig between the plants, at the same time introducing some decayed manure to supply nourishment in case of soil exhaustion; the other to let well alone, merely adding some fertilising material to the surface.

I think I have noticed a tendency to deprecate all digging among hardy flowers as being an old-fashioned and exploded system of culture, while at the same time the other method noticed has been exalted as the only plan to be endured in this enlightened age. I incline to the belief that there is something to be said on behalf of the merits of both plans. No doubt gardeners of past generations were unacquainted with some items of garden economy which are matters of everyday knowledge to us of a later day. At the same time there were some general principles which have been the common property of cultivators of the soil from all time, consequently it is not always wise to set aside a practice just because it happens to be somewhat antiquated, and I think there is something to be said in favour of digging hardy flower borders.

Our main borders run in the aggregate to over 800 feet in length, and since forming them they have been widened twice; at present they are 15 feet in width. They are in two longitudinal sections, some 6 or 7 feet to the front being thickly planted with a variety of bulbous plants in addition to those of evergreen or ordinary herbaceous growth. The other portion of the border is almost solely devoted to the latter. Every few years I find it necessary to re-arrange the plants, so many of them attaining very large proportions, while bulbous plants, such as Daffodils, Crocuses, Snowdrops, and many others deteriorate if left too long in an untended state. But in the intervals between these times of general re-arrangement there is annually the dressing of the borders to be taken in hand. In the case of the front portion, which is quite full of plants, and the greater portion out of the way, it would be, to say the least of it, an injudicious task to interfere with anything below the surface. It is, however, very important to apply some fertilising agent, and nothing in this case is better than the application of something to the surface. I am not very particular what it is, as even a thin layer of fresh soil results in an improved growth.

This season I applied a dressing of sifted material from the compost heap. In May or June a dressing of superphosphate of lime will very probably be applied additionally. Last spring a thick dressing of the above fertiliser was put on and covered by a thin coating of soil out of the back portion of the border. I have also employed spent manure from the Mushroom house, in this case also hiding it with soil, and a very good and fertile material is found in dry cow manure broken finely down.

With the other portion of the border I follow the old-fashioned plan of digging. In the case of some kinds of soil to dig the borders may not be necessary, but in the case of others it is. I invariably add a moderate amount of cow manure, and dig it in so that the roots may get the benefit of it. I am aware that the practice of digging and cutting the roots is considered an operation approaching the barbarous. However, the dislike to interfering in any way with the roots is more a sentiment than a reason based on a physiological fact. Every horticulturist knows the beneficial results which follow the partial removal of roots in the case of numerous plants cultivated in pots at the period when growth commences for the season. Azaleas, Fuchsias, and Crotons are examples of plants which are universally subjected to this treatment as an essential condition to successful cultivation.—B.

NOTES BY THE WAY.

A Great Fruit Farm.

WE must not quarrel with our Kentish friends when they claim that their beautiful county is "the garden of England," even though some of us may give preference elsewhere. In Kent scenes of pastoral beauty are met with on every side, and flowers and fruit abound. We need not ask whether the scenes are fairer, the flowers brighter, and the fruit richer than they are elsewhere, still less ought we to be inclined to institute disparaging comparisons considering the lessons the southern county teaches us in commercial horticulture. England's garden, to accept the phrase without cavil, is full of beauty in the springtime, as all gardens worthy the name should be. We do not see the breadths of plant bloom that will be observable later in the year, but the broad fruit farms spread a glory of blossom across the landscape and whiten it as if with snow. A journey down the Dover line when the trees are stretching their silvery arms far and wide is one never to be forgotten by those who love to store up memories of the bright pictures that are seen from time to time. The panorama is now unfolding, and for the next week or two the display will be such as no exhibition tent on earth could provide.

There must be many who have shared in my vague speculations as to what the huge fruit gardens of America, California, and Florida are like in spring, when the spurs that have been matured and ripened by a more constant and generous sun than ours burst into blossom. The flowers should be of the largest, the substance of the stoutest, the colour of the purest and brightest there. But here at home we have some reflex of it, and Kent redeems the character of the Old Country—not yet quite played out, as some would have us suppose—by her noble contribution to the soil's riches. And the garden goes on growing. Fields

are noted in which young standards—slender striplings as yet—and small bushes have recently been planted. They look somewhat bare, for thin planting is rightly practised, and their branches are few and slender, but they are planted well, the soil is good, and their progress will be rapid. The favourite undercrop is Gooseberries, also furnished with abundance of space. What they will bring forth time will show; but it is significant that the farmers who have both corn and fruit are decreasing the former and increasing the latter. To suggest that they would do this if experience had taught them that fruit growing is unprofitable is to intimate that the men whose enterprise and skill have increased the resources of the soil a hundredfold are purblind, ignorant, and foolish.

Not far from Sittingbourne, a pleasant old town in the heart of the fruit and Hop-growing district, is the great farm of Mr. Albert J. Thomas. He has 500 acres of land, and the fruit portion has kept on growing until 150 acres are now devoted to it. He has the experience of a lifetime behind him, and is a competent all-round farmer. Is it not, therefore noteworthy that he is planting more and more fruit as each season comes round? If fruit-growing spells ruin to farmers, as Shakespeare was said to do to theatrical managers, it is strange indeed to find one of the ablest and most experienced of the Kentish cultivators giving more and more attention to it. Mr. Irving taught that with modern management of the best kind the Shakespearian play did not close the doors of the theatre, and Mr. Thomas is showing in the quiet Kentish village near which he lives that fruit may be grown profitably on English soil. He is not a one-fruit man. Apples, Pears, Plums, Cherries, Gooseberries, Currants, and Strawberries are all grown on an extensive scale, and to the number of each additions are made. What is the secret of it? He is not specially favoured as to district; indeed, the records of the Good Friday storm speak of exceptional severity in the neighbourhood of Sittingbourne, bent telegraph poles and twisted wires speaking only too forcibly of the fury of the gale, while the frost is keen there as elsewhere. I think the reason is twofold—firstly, in the best principles of garden culture being brought into play upon the farm, and secondly, in the unfailing practice of fair dealing as between grower and purchaser.

The two points are worth dwelling upon. What, to begin with, does the first mean? It would be almost a platitude to draw imaginary contrasts between the fruit farm as it too often is, a hospital for diseased, worn out, and worthless trees, and the fruit farm as it should be, orderly, clean, well cultivated and judiciously planted with healthy trees. But it is no platitude to point a lesson from the latter when it is found, not in the imagination, but in an honest Kentish village half way between London and the sea. Mr. Thomas's fruit farm is a garden of fruit trees, and the distinction is not without a difference. There are many scores of acres, as has been indicated, and many hundreds of thousands of trees, but the land is as clean and free from weeds as a garden border under good management, and the trees are living examples of wisdom in the allowance of abundant room to grow, in adequate support, in thorough cleanliness, and in good training. They are in robust health and vigour, a picture of beauty and promise now that the bold spurs with which they are studded are developing the load of buds upon them, and, doubtless, a still more impressive sight when laden with fruit in the summer and autumn.

Pears are grown as we rarely see them on fruit farms, and not often in gardens. There are trees of Pitmaston Duchess now bursting into blossom that strike one as masterpieces of skilful management. What thinks the reader of £7 being realised by the crop of one bush? It has been brought by one of these Pitmastons, and individual fruits have been sold to dress the windows of fashionable fruiterers for 6d. each. Many will remember the fruit table furnished by Mr. Thomas at the Guildhall Show, and the magnificent examples he there exhibited; such may be seen in plenty when his trees are in bearing at Sittingbourne. They are in splendid condition, fifteen years old, or thereabouts, branching from the base, the main growths trained wide apart, and furnished with large healthy spurs that speak of the beneficial influences of sun and air. Years ago the site they occupy was a Pear orchard, full of huge old trees, but these were done away with, and the orchard became a brickfield. In due course the last brick was made, Mr. Thomas turned the ground into a Pear garden once more, and now his Pitmastons there are one of the bright features in England's garden. The trees are liberally fed; that would be judged from the way they grow and bear, even if the handle of a sewage pump in their midst did not tell its own story. One of these trees on the Pear stock is worth six of the same age on the Quince.

Further away in the country, where his chief farm lies, there are evidences of the same sound cultural principles. Gooseberries are grown in such abundance that it is hard to imagine that the produce can all be disposed of; yet it goes somewhere, not all at once, but successively, and a point that is worth bearing in mind is that the Gooseberry gathering keeps the pickers employed until other fruits are ready, and skilful pickers are at hand when specially wanted. The Gooseberries bear heavily every season, because the bushes are grown wide apart and the branches are thinly disposed. The invaluable Wainham's Industry is largely represented, and so are Crown Bob and a variety cultivated under the name of Berry's Early Kent, which is probably synonymous with Keepsake. Golden Drop is also found useful, although the blossom suffers somewhat from the frost owing to the upright character of the bushes, which leaves it more exposed than on those with pendent branches. Warrington is to be discarded. Of Cherries, there are many huge trees like ancestral Beeches. They

are the giants of the farm, and, with a mantle of snowy blossom around them, have all the ripe dignity of age. A ton of fruit has been gathered from one of these trees. Gathering is one of the greatest difficulties with them; but experienced women pickers mount the tall ladders and gather the fruit without fear. Early Rivers, Bigarreau Napoleon, and Cluster are three varieties that are largely grown. The latter is not known everywhere, but is a free grower, a great bearer, and sells well.

Of Apples, there are many acres, and a considerable number of varieties are grown. Mr. Thomas is not a believer in the one-variety system, and new ones are constantly being tried. Trees headed down and garnished with grafts indicate what happens if one variety does not give satisfaction and it is desired to try another. Pride of place is given to Ecklinville, a splendid market Apple without doubt, and Bramley's Seedling, Domino, Lady Henniker, and Lane's Prince Albert may be mentioned as others that are highly esteemed. The trees are first planted with Hops, these paying their way until the trees require more room, when they are at once dispensed with. A careful system of cropping is pursued. Gooseberries are the leading undercrop, and Strawberries are, in some cases, grown between them; but no doubt if the land were moist and holding, Black Currants would be substituted for Gooseberries. Several acres of the Currants are grown, the leading variety being Baldwin's. Mr. Thomas is, in every respect, endeavouring to keep up with the times, and is not content to jog along in the old grooves. He was struck by the advice in *Profitable Fruit Growing* to avoid the severe annual pruning too often practised with the result of inducing more and more fruitless growth, and to practise thinning and summer pinching instead, put it into operation, and is fully satisfied with the results. Similarly, a suggestion from the author of the book to apply a dressing of chemical manure for the support of trees that seemed incapable of developing their crop was acted upon with great success. It is certain that in future the application of fertilisers, such as kainit, superphosphate, and nitrate of soda, for the assistance of fruit trees, will be closely studied, and improved crops will doubtless result.

Mr. Thomas fully recognises the importance of marketing fruit well. He grades his consignments with scrupulous care and exactness. The system of sending mixed fruit to market, with the result that the inferior portions of the consignment drag down the superior to their own level, is not believed in, nor is that of placing poor fruit at the bottom and facing it with good specimens in order to hoodwink the buyer. This suicidal policy has already done enough damage to English fruit growing. He finds it profitable to pay for labour in sorting, grading, and packing well, for it has gained him a reputation that sells his fruit readily in the markets to which it is consigned. Hundreds of tons are annually disposed of without difficulty, for buyers have confidence in being treated fairly and well. Nor are the choice Pears, to which reference is made above, tumbled roughly together and thus disposed of. The fruit is carefully packed in small boxes and tastefully displayed, its value being thereby materially enhanced. Choice fruit will no more fetch its best price when sent to market in a rough state than fancy soaps would if, instead of being placed before the public in attractive boxes with lace-paper accompaniments, they were sold in bars like the common yellow or mottled. In this respect, as in many others, Mr. Thomas is setting an example that might be followed with immense advantage to England as a fruit-growing nation.—W. P. W.

A NOTE ON CABBAGES.

"NEVER place all your eggs in one basket" is an old adage with much truth in it, and I find there are many gardeners, both amateur and professional, who are this season regretting that they did not act upon the precept contained in this hackneyed saying when sowing the Cabbage seed which was intended to produce a good spring crop.

I made a sowing of Ellam's Early the second week in July last, the weather being favourable. The plants from this sowing grew very fast. When planting them out in their winter quarters several of my gardening friends assured me they would inevitably "boil," but after the experience of the previous severe winter I considered it was worth risking something to obtain a good bed of early Cabbages. I am now rewarded by having what I consider to be one of the earliest beds of Cabbages in Warwickshire. By the first week in May I shall have Cabbages fit for table, and out of 400 plants set out in September last only two have succumbed to the severe winter we have passed through. Just before the severe frosts set in in December the plants were hearting well, and the only effect the frost had upon them was to suspend growth and turn the edges of the outer leaves brown. From this check they quickly recovered when the weather improved and have grown steadily since.

Our plants from a sowing made the second week in August have fared but badly, two-thirds of them having been killed outright, while those left are very late, and in marked contrast to the plants from the early sowing growing beside them. All who wish to be on the safe side in the matter of Cabbages should make one early sowing in July and another in August. Our soil is light and sandy.

It would be interesting to know how Cabbages have fared on heavy soils in various parts of the country, and notes on the subject from correspondents would, I think, be interesting to readers of the Journal.—H. DUNKIN.



ROSE SHOW FIXTURES IN 1892.

- June 21 (Tuesday).—Westminster (N.R.S.).
- " 23 (Thursday).—Ryde.
- " 28 (Tuesday).—Maidstone.
- " 29 (Wednesday).—Brighton*, Farningham, Ipswich, King's Lynn*, and Windsor.
- " 30 (Thursday).—Canterbury, Eltham, and Winchester.
- July 2 (Saturday).—Crystal Palace (N.R.S.)
- " 5 (Tuesday).—Bagshot, Diss, Earl's Court*, Gloucester, and Sutton.
- " 6 (Wednesday).—Brockham, Croydon and Hitchin.
- " 7 (Thursday).—Bath, Lee*, Norwich, and Woodbridge.
- " 9 (Saturday).—Reigate.
- " 12 (Tuesday).—Hereford and Wolverhampton.†
- " 14 (Thursday).—Chester (N.R.S.), and Helensburgh.
- " 19 (Tuesday).—Moseley* (Birmingham).
- " 21 (Thursday).—Trentham and Worksop.
- " 23 (Saturday).—Bedale and New Brighton.
- " 28 (Thursday).—Halifax and Southwell.
- " 30 (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

JUDGING ROSES.

I AM glad to see the question of faded Roses has come to the front. Most judges, I apprehend, will recollect difficulties of deciding between a fine box rather gone off and another of smaller, but brighter, blooms. I do not mean of undersized Roses, those now-a-days can seldom expect to be "in it." Would the question be better put, not "What is a faded Rose?" but "When should a Rose be condemned as faded?" In judging twelve of one kind I have generally found "colour gone off" very fatal to them. Some Roses show fading and over-keeping more than others, especially those "W. R. Raillem" mentions; whereas, as he says also, there are Teas which can almost lose colour with impunity. I have seen Tea blooms which had been the best blooms at several shows in succession. It is hard to define, but there is a rule of thumb soon observed to exist with good judges; if one of the three says "That is faded," he is little likely to find the point contested.—A. C.

I THANK my friends "D., Deal," and "W. R. Raillem," also "J. B.," for their letters, and I hope that others may be induced to give their views of this matter. In answer to "D., Deal's" inquiry I would say that my definition of a faded Rose would be "a Rose sufficiently discoloured as to lose its distinctive character." I wish "J. B." and Mr. "Raillem" would again read the paper I referred to, "Rosarian's Year Book, 1889," page 10. They will find there four examples of bad Roses. First, undersizedness—say, "a Charles Lefebvre the size of a Duchesse de Caylus." Second, past colour or fadedness—say, "an Alfred Colomb, still good in shape but with faded colour." Third, bad shape—say, a Perle des Jardins with a folded split at the side of the flower." Fourth, an over open flower—say, "Thomas Mills showing its eye."

I can hardly conceive a more complete or cutting definition of a bad Rose than example 3, that of a deformed Perle des Jardins. Surely there can be but one opinion of such a flower. And yet it has most likely colour and probably size. Would "J. B." give such a monstrosity one or two points? I can hardly think so. But is there to be one law for the rich and another for the poor in Rose judging? Mr. "Raillem" would give one or two points to a faded Alfred Colomb still of good form. "J. B." is even more generous, and should there be still good form would give one point to a Rose that is undersized as well as faded. I ask again, Would either of these good judges (they are both, I say without the slightest flattery, excellent judges) give one or two points to such a flower as the Perle des Jardins, with a folded split in its side? I cannot bring myself to think so, and yet if Mr. "Raillem's" interpretation of the passage in the "Rosarian's Year Book," mentioned above, be correct, and if "J. B.'s" interpretation of the points of a Rose be accepted, this monster (I use the term in its classical sense) must receive one or two points.

I quite agree with Mr. "Raillem" that the medal is only too often given to an "over-cooked" Tea bloom, but that is, I confess, a matter of regret to me. I would only give a medal to a bloom that possesses all the essential qualities of a good Rose.—"Form, size, colour, and being at the time of judging in the most perfect shape of its possible beauty." I have won many medals, often, I feel, without these essentials; sometimes, I feel proud to say, when the flower possessed them all. If medals were given to flowers of only such excellence they would be really valued, and I believe would more often than now be won by such flowers. As it is, exhibitors know that size when with forms wins, and consequently size, especially in Tea Roses, is sought for and obtained only by overblooming. I must apologise for the length of this letter, as I only intended to answer my friend, "D., Deal's," query, but I hope my garrulity will be graciously pardoned.—HENRY B. BIRON.

STRAY NOTES.

I, TOO, was surprised that "Rosa" should find "Niels" unprofitable to grow in comparison with white Roses, and when I read it turned to the Covent Garden Market price list, as given in the same number of the Journal. I there found yellow Roses quoted at exactly double the price of whites, and as "Niels" can certainly be grown in much greater quantity per square yard of glass than white Roses, I could only conclude there was a mistake somewhere.

I can quite believe what "A. D." says about this Rose being more profitable if grown without heat, and so delayed till the time of the London season. And this set me wondering whether it would not be almost worth while for show purposes to have a glass house on the north side of a wall, so as if possible to delay them still further for the Rose shows. My "Niels" under glass have been worse than usual this year, owing to self and man being laid up for a long time in the winter, but I have had sufficient good blooms to win a handful of medals if I could have shown them in the Rose season. I expect somebody will devise some such means, and cut us all out some day.

I am sorry to say that Collodion, as far as I can judge, has had no effect in saving either buds or wood from frost. I am the proud possessor of one standard Rose tree, and one only, with a little life left in it. All the standards of Her Majesty as well as Maréchal Niel are killed; in a good many cases I think the stocks themselves have perished. About a dozen years ago, after a severe winter, a good many of my standard H.P.'s died off after pruning, and I found to my surprise that the death-wound in these cases was not in the Rose but in the Briar stem. I hope there has been no such loss among standard stocks during the late winter as in the one before it. I was unable to collect my own stocks this year, and so sent to ask a man to get some for me in February. By the beginning of March I was well enough to get into my greenhouse and prune and trim the roots there; it was a wonder how anyone could bring so many nice stems with really no roots at all, but still more of a surprise to find that of the first fifty delivered just half the number were Blackberries! Some rumour of what I was doing must have got abroad, for a friend remarked that he had heard I had all my Roses dug up and brought to me in the greenhouse to be pruned, but I was obliged to disclaim such a noble enterprise.—W. R. RAILLEM.

THE ROSE MAGGOT.

WILL some of your readers kindly inform me through the medium of the Journal the best method of destroying the maggots that infest my Rose trees very much this year?—ROSIER.

IS MARÉCHAL NIEL A TEA SCENTED ROSE?

I ASK this question because I find our trade growers are by no means unanimous on the point, and as I am not an exhibitor of Roses I am not sure what rule is usually followed with this variety. Possibly the N.R.S. has spoken in an authoritative manner at some time on the subject. At any rate, I should be glad to hear through your columns if this kind would be eligible, say in a competition of twelve Tea-scented Roses.—W. H. DIVERS.

DAFFODILS AND NARCISSI.

(Continued from page 293.)

CLASSIFICATION AND STRUCTURE.

I FEAR that, with many people, all the Trumpet Daffodils are put down as Lent Lilies, more or less diversified by cultivation, but I need hardly remind a society of gardeners that this is far from being the truth, or the whole truth, and indeed has but a small grain of truth in it. How many varieties there are now in commerce it would be difficult to say. Mr. Peter Barr, a well-known collector, put it to me at over 500. It is rather a singular thing that a family of so many tribes and sub-divisions should not be a natural order in itself, but so it is. There is no such natural order in botany as the Narcissus. It belongs to the Amaryllidaceæ, or Amaryllis family. The Hoop Petticoat Narcissus, in the arrangement of its pistil and stamens, shows the family resemblance most strongly. The Snowdrop belongs to the same natural order. Broadly speaking, the trumpet-shaped Narcissi, of which the Lent Lily is the common type, are called Daffodils; and in this are included the Incomparable Narcissi, like Sir Watkin and others, with a shortened trumpet. When the term Narcissus is used in the popular sense, it applies to the flat-crowned sorts like the Pheasant-eyed Narcissus and the Polyanthus or Bunch-flowered. These are indeed true Narcissi. This distinction is a popular rather than a botanical one, although the two branches of the family are structurally distinct also. In a Trumpet Daffodil the stamens (six in number) are of an equal length. In the true Narcissus three come to the level of the crown, the other three stopping midway in the tube. There are three natural groups, or families, or tribes, and these are known by their corona or crown, the first, called Magnicoronati, or great crowned; the second Mediocoronati, or medium-crowned; the third Parvicoronati, or small crowned. For a homely description these may be called the grand trumpeter or coffee-cup section, the chalice-cupped or tea-cup section, and the Poet's Narcissus, or tea-saucer section. For those who think that a yet shorter description might have been found, a wag at the Daffodil Conference suggested, for everyday use, the terms "long noses," "short noses," and "flat noses." Perhaps there was

more in his racy description than he was aware of, for there is much to be said in favour of a good nose—in Daffodils, at all events. As a good and unmistakeable type of the great crowned, Maximus, Horsefieldi, and Golden Spur serve as examples. Of the medium crowned, Sir Watkin, Queen Bess, and Stella show the type. The Pheasant-eyed or Poet's Narcissus is a good illustration of the small crowned. The question of colour, as in the case of Horsefieldi (a bicolor), has no bearing upon this matter. Jonquils have, as their distinguishing characteristic, round, rush-like leaves, instead of flat leaves as the other Narcissi have. But the little Hoop Petticoat variety, and the Cyclamen-flowered triandrus, as well as N. intermedius and N. gracilis, have also rush-like leaves. Much attention has been given these past few years to a variety of the Polyanthus Narcissus called the Chinese Sacred Lily, or Joss Flower, or Good Luck Lily. In Canton it is called Shui Sin Fái, or the Water Fairy Flower. Some florists tried to identify it with varieties in British commerce, but it seemed to vary from them all. It appears to be a single or semi-double form of the Double Roman. The bulbs are grown in a kind of greasy grey mud-like sand, and are sent to Canton for sale before flowering time. They are much prized by the Chinese, who grow them in little shallow bowls filled with pebbles and water. A Chinaman is happy when he can have his Good Luck Lily in bloom on New Year's Day, which nearly corresponds in date to our St. Valentine's Day. As we decorate our churches at Christmas and Easter, so the almond-eyed Celestial decorates his Joss-house at the festival of the New Year. Whether this custom prevails in Joss-houses out of China I cannot say.

DAFFODILS AS CUT FLOWERS FOR DECORATION.

These flowers have a double qualification. In the growing state, either in the open border or in pots, they are highly decorative, and as cut flowers for the drawing-room, for the fashionable dinner table, or for the mantelpiece of an ordinary sitting-room, there are few flowers more lovely, none more graceful, and few, indeed, that so lighten up and brighten a dark room. For cut flowers those varieties which have long stalks are much to be preferred. Such varieties as Golden Spur, maximus cernuus, Horsefieldi, Sir Watkin, Stella, poeticus ornatus, the grand old fashioned Codlings and Cream with its more striking sister, Eggs and Bacon, and the beautiful double poeticus, or Gardenia-flowered Narcissus. The last three are doubles, and much to be recommended; but, for cutting, single flowers, as a rule, are more useful and profitable, for they are lighter in appearance and they last longer. Fashions in flowers change as in everything else. In the days of our forefathers it was considered the correct thing to have everything in the way of house furniture as massive as it was possible to get it. The Codlings and Cream and the Eggs and Bacon Daffodils were consequently thought highly of. They accorded with the prevailing taste. Now, however, when we are on the æsthetic tack, the fashion in Daffodils has changed too, and the single varieties with their airy elegance and refinement of form are happily in the ascendant. These three kinds are, however, indispensable in ever so modest a collection. The Codlings and Cream has a rich soft creamy hue, while the Eggs and Bacon is unique with its orange-coloured petaloid stamens rising from their milk-white setting like a phoenix from its ashes. The lovely cernuus plenus, which has a perfectly double creamy white trumpet, is a grand flower. Sometimes, as in the case of the fine old double Daffodil, the trumpet instead of being entire is split, and the flower then assumes the form of a full-blown Rose. The latter appearance is likely to occur after a hot summer or if the bulbs are grown in a warm sandy soil. In a shady situation or in stiff soil they are more likely to retain their trumpet shape. All kinds should be cut before they expand into full bloom, just when they have slipped their hood or flower sheath and are showing the colour of the calyx, or perianth, as the calyx of a Daffodil is called.

Immediately after being gathered they should be placed with their stalks in water in a darkened room—say, in a potting shed, or any other cool place, where they are not exposed to sunlight or to any artificial heat. The flowers will then open clean, fresh, and pure in colour, and will have three times the enduring qualities which those would have which were allowed to be in full bloom before cutting. Early morning is the best time for cutting Daffodils, and if it is intended to pack them and send them away they ought to be placed in water two or three hours previously. One of the very best for packing is the Tenby, the trumpet being short and stout, and not easily damaged. In arranging Daffodils it is well, if possible, to place them in slender and fairly tall glasses, never upon any account crowding them together, but placing them loosely and naturally. As far as it can be done so dispose them as they would have looked when growing. Nothing looks worse than to see these lovely flowers huddled together in fat, podgy bunches. They ought always to be garnished with foliage becoming them—their own leaves. Daffodils do not readily mix in any kind of society. They like to move in their own set. As the natural foliage is recommended, the question might fairly be asked, Would it not be robbing the plant to denude it of its leaves as well as its flowers? Certainly it would, and the plant would quickly resent such treatment.

In the Daffodil world, as among ourselves, while some command, others must obey. We must therefore look to the commoner sorts, such as the common Trumpet Major, the Lent Lily, or the Double Daffodil, to provide foliage to set off their more aristocratic brethren and sisters. If you take the leaves as well as the flowers from the finer sorts—many of which are not only costly to begin with, but are slow in reproducing

themselves—you must not expect great things in the way of increase, nor must you look for fine flowers from them the following year. What I would recommend to those who grow the select sorts is to have dotted up and down the kitchen garden in small clumps some of the cheapest kinds to pick foliage from, and so be able to leave intact the leaves of the choicer named sorts. There would not only be economy in this plan, but it would be the means of enlivening the kitchen garden in the early months of the year, when it is often little else than a howling waste of naked stems and leafless branches.—A. HOPE.

(To be continued.)



EVENTS OF THE WEEK.—A meeting of the Linnean Society takes place to-day (May 5th). On the 6th there will be a display of Auriculas at the meeting of the Dundee Horticultural Association, and on Saturday, the 7th, the International Horticultural Exhibition at Earl's Court will be opened. The sale of Orchids at Stand Hall, Whitefield, near Manchester, which commenced on Tuesday, will be continued on May 5th and 6th. On the 6th there will be a sale of *Cattleya labiata autumnalis* from an entirely new district at Protheroe & Morris's rooms, by order of Messrs. Charlesworth, Shuttleworth & Co., other sales taking place on the 10th and 11th. For particulars see advertisements. An important meeting of the National Tulip Society will be held at the Bulls' Head Inn, off Market Place, Manchester, on May 7th. It may be noted that "Duneevan," the beautiful residence of the late Mr. James MacIntosh at Oatlands Park, Weybridge, will be offered for sale by Messrs. Farebrother, Ellis, Clark, & Co. at the Mart, Tokenhouse Yard, London, on May 12th.

— **THE WEATHER IN LONDON.**—Showery weather has prevailed during the last few days, although May opened bright, clear, and warm. The 2nd and 3rd were dull and damp, but without heavy rain. At the time of going to press the barometer is much depressed, the wind in the north-west, but very light, and drizzling rain is falling.

— **DEATH OF MR. E. COOPER.**—We regret having to announce the death of Mr. Edward Cooper, who for the last seventeen years has been head gardener to the Right Hon. Joseph Chamberlain, M.P., which took place at Highbury on the morning of the 2nd inst. The cause of death was cerebral apoplexy, resulting from the rupture of a blood vessel in the back of the head, and his death is sincerely mourned by a very large circle of friends. He had, like so many others, suffered from illness during the spring, but had to a great extent recovered. Mrs. Cooper is an invalid, and for some time had entirely lost her speech, and could make others understand only by actions and writing, but the sudden shock of her husband's death suddenly restored to her the faculty of speech.

— **THE INTERNATIONAL FRUIT SHOW.**—At a Committee meeting held on Tuesday, Sir James Whitehead, Bart., in the chair, what may be described as the preliminary arrangements, which have been of a varied character, were practically concluded, and energetic action may be expected to follow in due course.

— **THE GARDENERS' ORPHAN FUND.**—At the Committee meeting of this charity held on Friday evening last, Mr. B. Wynne in the chair, the following contributions were announced—£10 from Mr. J. B. Stevenson, as the result of a dramatic entertainment at Bournemouth; £10 from Alderman B. Watson, Wakefield; and 11 guineas from Mr. A. Dean, the results of a concert at Kingston-on-Thames. The thanks of the Committee were accorded to those helpers, and Mr. Dean was appointed local Secretary for the Kingston district. Preparations for the annual dinner, to be held on May 17th, were advanced, and a large and influential gathering is expected.

— **GARDENING APPOINTMENTS.**—Mr. W. Pratt is leaving Longleat, and the head gardener's place has been offered by the Marquis of Bath to Mr. J. Trollope, for many years general foreman in the same gardens, and accepted by him. The following appointments have been made through Messrs. John Laing & Sons, Forest Hill, S.E. Mr. D. Munro as head gardener to J. P. Cory, Esq., Neville Court, Tunbridge Wells; Mr. Rose as head gardener to C. C. Gowan, Esq., Bell House, Dulwich, S.E.

— **THE NATIONAL PINK SOCIETY (MIDLAND SECTION).**—We have received the schedule of the Show which is to be held in connection with the floral fête that opens at Wolverhampton on July 12th. Good prizes are offered in eleven classes, and a fine display of this charming garden favourite should be forthcoming on the occasion. Mr. C. F. Thurstan is the Honorary Secretary.

— **SHOW AND GALA AT EPWORTH.**—The fifth annual Show and Gala is announced to be held on Bank Holiday, August 1st, in the Rectory grounds, by permission of Canon Overton. The Secretary is Mr. F. Grant, High Street, Epworth.

— **THE "METEOROLOGICAL MAGAZINE"** (Symons's Monthly) contains much interesting information on the weather and other subjects. There is a letter on town fogs from the Rev. John Slatter, in which he blames Father Thames for most of the London fogs, but with respect to the worst of them does not see how the river could have had anything to do with it, which partly clears the character of the ancient stream, but leaves the subject a little denser than it was before.

— **EASTBOURNE HORTICULTURAL SOCIETY.**—Mr. W. Sharp presided over a meeting of this Society a few days ago, when the winners of certificates at the previous monthly Show, Messrs. Watson and Whibley, received their awards. There was some conversation on the subject of holding the monthly exhibitions at the Devonshire Park, and as the idea was approved of steps will be taken to complete such an arrangement if it can be done. Our Eastbourne friends should not be afraid to strike out. If the members do their best some very good displays could be provided.

— **THE NEWCASTLE SPRING SHOW.**—We have been favoured with a report of this Show, which was held on Tuesday and Wednesday in last week, but it arrived too late for insertion. The Exhibition is described as comparing favourably with those of previous years, but the inclemency of the weather prejudiced the attendance. Mr. F. C. Ford, The Gardens, Piermont, Darlington, took the chief prize for stove and greenhouse plants and Orchids. Mr. Patterson, Ashbourne Gardens, Sunderland, was a successful exhibitor of Auriculas, and Messrs. Watson and Dewar of Hyacinths. Cut flowers and table decorations are described as forming an excellent display.

— **THE PROFITS OF A THEORY.**—Mr. John Bottomley has been trying his hand at market gardening on new lines, but his enterprise has come to an untimely end. "Liabilities £477, assets £250," represented his financial position when questioned by the Official Receiver. He had been an overlooker previously, and had "summed up his knowledge of market gardening through reading books." He is now perhaps of opinion that a pound of practice is worth a ton of theory.

— **WATERLOW PARK.**—One of the prettiest public spots in North London just now is the recently acquired Waterlow Park. This is about 29 acres in extent, and was generously given to the London County Council by a member of a well-known printing and publishing firm, whose name it bears, for the benefit of the rapidly increasing population of Highgate and the neighbourhood. Spring flowers of numerous kinds are now making a fine display, and the fruit trees, of which there are many, are in full blossom, adding considerably to the beauty of the scenery. The park, which a year or two ago comprised the finest old gardens in that district, is charmingly laid out, and the mansion attached to the grounds is shortly to be utilised as a museum.

— **STRAWBERRY LA GROSSE SUCRÉE.**—I quite agree with Mr. John Chinnery as to the merits of this Strawberry. As he states, it should be largely grown where local conditions are suitable for it. I well remember when living at Worsley the fine fruits of it obtained, and when paying a visit there very recently I noticed some excellent examples in the forcing houses. It, like many others, will not do everywhere, but where it is at home it is a good grower, throwing its bold trusses of flowers well up above the foliage—a very important matter in early forcing. From my observation of it, it is rather shy in producing pollen, early in the season at any rate. This can be greatly remedied by introducing a batch of Vicomtesse Héricart de Thury or any other kind prolific in pollen at the same time, and by placing the plants alternately they can when in flower be quickly cross-fertilised, which produces fruit of perfect shape. Where not properly set it is not of very pleasing appearance, although of a fine brisk sub-acid flavour.

—J. J. C.

— LOUGHBOROUGH AUTUMN CELERY AND VEGETABLE SOCIETY.—Harmony usually reigns round the festive board by the time the Celery is placed on it, but unfortunately there is not the same spirit in the ranks of the Loughborough Celery and Vegetable Society. Differences have arisen, and both Treasurer and Secretary gave in their resignations when the annual general meeting was held just lately. A deputation was appointed to wait on the former in the hope that oil might be poured on the troubled waters. We trust to hear that the difficulty has been smoothed over, and that the belligerents are again reading their Journals in happy accord.

— A COMPLIMENT FROM "LE JARDIN."—Our French contemporary pursues its useful course, and has added to its pages a column or two of current notes under the heading of "Nouvelles et Glanages." This is sufficiently near "Notes and Gleanings" to merit our claiming a compliment of imitation. We respond to it by the publication of M. Hariot's humorous note on the manifold virtues of the Eucalyptus below.

— THE EUCALYPTUS AS A HEALTH-GIVER.—M. Hariot turns his pleasant pen to the Eucalyptus in a recent issue of *Le Jardin*, and writes:—"The Eucalyptus, globulus and others, is good for all, and cures everything—diseases past, present, and to come. This, at least, is what appears to result from the use to which it is devoted in Australia, particularly in Victoria. Baron Von Mueller, the apostle of the Eucalyptus, has recommended—and all the world hastens to follow his advice—that green branches of Eucalyptus should be dispersed in sick rooms. In cases of scarlet fever disinfection is practised by placing branches under the bed of the invalid, which continually diffuse large quantities of essence. These are, it appears, a sovereign remedy for consumption; they are sedative and hypnotic, capable, in a word, of curing everything—troubles of the head equally with corns on the feet. The Manchineel killed—formerly—by its shade alone; the Eucalyptus is in a fair way for resuscitating the dead."

— EUCHARIS AMAZONICA WELL GROWN.—I am sending two spikes of *Eucharis amazonica* for your opinion. They have each seven flowers, and I have several with the same number. I have twenty spikes bearing 118 flowers, from bulbs in a 14-inch pot; and twenty-six spikes, with from five to seven flowers on each, from bulbs in four 8-inch pots. All the plants flowered in November, and a few spikes were produced in February. I have a frame full of *Eucharises* planted out which are just throwing up spikes.—WM. JONES. [The samples indicate good cultivation. The leaf sent with the flowers was 14 inches long by 8 inches broad, very stout in texture, and deep green in colour.]

— THE PHYLLOXERA IN FRANCE.—M. Georges Conanon, the Inspector-General of the Phylloxera Department in the French Ministry of Agriculture, says there is reason to believe that before long France will have once more regained her old position as a wine-growing country. Things have been steadily improving since the dreaded phylloxera first made its appearance, so that in two years and a half there will be, at the present rate of progress, 2,500,000 hectares of land under Vine cultivation—that is to say, a larger superficial area than at any previous period. Although we are accustomed to look upon France as a wine-exporting country, the very reverse is the case. It is true that France now produces one-sixth more wine than Italy, which is the next largest wine-growing country, one-third more than Spain, five times more than Hungary, which comes next, and ten times more than Austria or Portugal; but then the consumption of wine in France is so great that for every bottle of fine wine exported more than a bottle of inferior wine is imported, chiefly from Spain. Our own colonies of Australia produce only one-three-hundredth of the French crop, and about the same quantity is credited to the Cape Colony.—(*Daily News*.)

— APRIL WEATHER IN HERTS.—The weather in this district during the past month has been of a sensational character, either very bright and summerlike or more fitting the month of January. The first eleven days were very fine, with hard dry frosts at night. Then followed seven days of a very winterly character, with a north-east wind. There were 12° of frost during the night of the 13th, followed by two nights of 10°. Early Plums that were unprotected are, I fear, destroyed; but those that had some slight protection are safe. The same remark applies to Peaches, Apricots, and Pears, while the bush fruit appears quite unhurt. Rain, sleet, and snow fell upon eleven days. The maximum in any twenty-four hours was 0.37 inch on the 27th, the minimum 0.02 on the 25th; total for the month 0.88, against 0.90 of 1891.—E. WALLIS, *The Gardens, Hamels Park, Buntingford, Herts.*

— APRIL WEATHER IN THE NORTH.—April remained to its close, dry, cold, and ungenial. There were 4° of frost on the morning of the 27th, 6° on that of the 29th, and this morning (May 2nd) there are 2°, with pretty dense hoar frost. There is as yet no appearance of the much-needed rain.—B. D., *S. Perthshire.*

— APRIL WEATHER IN SUSSEX.—The total rainfall at Cuckfield, Sussex, was 0.71 inch, being 1.03 inch below the average. The heaviest fall was 0.20 inch on the 20th. Rain fell on eight days. The highest temperature was 71° on the 4th, the lowest 27° on the 15th. Mean maximum, 58°; mean minimum, 37.1°; mean temperature, 47.5°. Partial shade readings, 3° above the average. Mean temperature of the week ending the 9th, 54.8° (equal to the last week of May); ditto ending 16th, 43.7°; ditto ending 23rd, 46.8; ditto ending 30th, 46.2°. May came in cold and damp. Wind still in the N.E.—R. I.

— THE WEATHER AT RIPLEY, YORKS, DURING APRIL.—The month opened very bright, with a high day temperature, but frost at night, and with the exception of the 5th, 6th, and 7th continued so to the 11th. On the 12th and three following days snow fell in quantity; also on the 18th and 27th. The latter part of the month was very cold. Frost was registered upon twenty-one days, the most severe being 17° on the morning of the 15th and 16° on the 16th. The highest day temperature (in the shade) was 71° on the 2nd. Mean reading of barometer, 30.8. Mean maximum temperature, 54.7°; mean minimum temperature, 28.9°. Mean temperature, 41.8°. Rain fell upon fourteen days. Total fall for the month, 1.74 inch, of which 0.76 (rain and snow) fell on the 27th.—J. TUNNINGTON, *Ripley Castle Gardens.*

— TULIPS AT CRICHEL.—A few days since I was favoured with a visit to Crichel, the magnificent seat of Lord and Lady Alington. I found the annual display of Tulips in the height of perfection. There are 15,000 of them effectively arranged in three varieties—namely, Crimson King, Yellow Prince, and La Reine. They fill twenty-seven large beds, which form the flower garden on each side of the fine broad walk leading from the mansion through the extensive pleasure ground. It is a grand display and worth going a long distance to see. The glimpses of these beds in going through the lovely glades of these well kept gardens are very pleasing, as are the views of the picturesque lake and park, also of the pretty church situated in the grounds. There are also fine old specimens of Coniferæ, extensive beds of choice Rhododendrons, and fine collections of flowering shrubs and roseries, which Lady Alington has much improved lately by additions of large beds and borders of the best varieties. The kitchen gardens are in high order, but the late frost has left its mark on fruit trees. The fruit houses are looking well with fine crops of Grapes, Peaches, Cherries and Strawberries. I find James Veitch Strawberry is a favourite here, also for late work. The plant houses are full of useful decorative plants and climbers looking the picture of health, thus resembling the excellent gardener, Mr. Beck.—C. HAZEL.

— HESSLE AND HOWDENSHERE HORTICULTURAL SOCIETY.—The schedule of the first Show of this newly formed Society, which is to be held in the grounds of Tranby Lodge, Hessle, on July 27th and 28th, is a comprehensive one. It contains upwards of a hundred classes in the four sections of plants, cut flowers, fruit, and vegetables. Most of the chief classes are open to all comers, a reasonable and proper reservation being made in favour of exhibitors who reside within twenty miles of Hessle church. Evidently the object of the Committee is to bring together the best examples of culture procurable, and also, and rightly, to encourage local gardeners, amateurs, and cottagers to enter into competition with the object of giving a stimulus to horticulture in the district. A 5-guinea silver cup and £5 are offered as the first prize in the open class for an 100 feet square group of miscellaneous plants, with £4, £3, and £2 as the remaining prizes. A similar cup and £3 are apportioned as the first prize for a local group of somewhat smaller dimensions. The silver medal of the Royal Horticultural Society and £3 will be awarded for the best six stove and greenhouse plants, and the bronze medal and £3 for the best collection of fruit. Prizes of £3, £2, and £1 are also offered for tables of Orchids and Ferns. The silver cups are presented by the Presidents of the Society, Francis R. Pease, Esq., and Arthur Wilson, Esq., D.L. Hessle is a pleasant village near Hull, and we imagine if the day is as fine as the Show is expected to be a large number of persons from the busy port will be attracted to Tranby Lodge on the dates named. Messrs. Ernest M. Clarke and R. Falconer Jameson, Hessle, are the Honorary Secretaries of the Society, and may be relied on to do all that can be done to make the event a success.

— **AUBRIETIA CAMPBELLII.**—One of the prettiest patches of colour on the rockery at the present time comes from this enlarged form of deltoidea and which is a synonym of Hendersoni, with a much more vigorous constitution than the typical form. The colour is a deep violet blue, very effective in a mass. This variety is much superior for the embellishment of the flower beds in the spring garden than purpurea and græca. A stock of plants can be as easily obtained as the above by dividing the roots.—E. M.

— **BOTANICAL STATIONS IN THE WEST INDIES.**—Among the botanical stations lately founded in the West Indies, in accordance with a scheme propounded in the *Kew Bulletin* five years ago, that at St. Vincent claims, says a daily contemporary, the foremost place. St. Vincent is one of the Windward Islands lying about 100 miles west of Barbados. It is picturesque, fertile, and very healthy. The total area is 133 square miles, with a population of 50,000. At present only about one-sixth of the surface of the island is under permanent cultivation. The object sought by the establishment of a botanical station in St. Vincent is to provide a small centre for propagating and distributing industrial plants and information.

— **CALIFORNIAN FRESH FRUITS.**—An experiment of great importance is to be made with a view of introducing into this country, in fresh condition, the choicest Californian fruits, such as Cherries, Strawberries, Peaches, Apricots, Oranges, Apples, also Tomatoes, says a contemporary. The promoters of this scheme are the Californian Fruit Transportation Company of Chicago, who undertake, by means of their patent refrigerator system, to land the fruit in perfect condition, and so sanguine are they of this that arrangements have been made for the conveyance of large quantities weekly by the famous steamers of the White Star Line, the disposal and distribution being entrusted to Messrs. James Adam, Son, & Co., of Liverpool, and Messrs. J. & J. Adam & Co., of London. The first shipment will be by the "Majestic," due in Liverpool next Wednesday, and the result of the experiment is anxiously looked for by those interested, particularly by the shippers, who desire to offer to the British public the fruits of this sunny clime.

— **A ROD FOR THE ROOT HUNTER.**—In Switzerland, as in England, says the *Daily Graphic*, there are people whose general amiability of character does not prevent them from pulling flowers up by the roots "merely for wantonness." So frequent has this misdemeanour become in the Tyrol that the Diet has felt constrained to pass a special law for the protection of the Edelweiss. It is to be feared that the measure will only be occasionally and spasmodically enforced. It is not true, as many have been taught to think, that the Edelweiss is only to be found above the snow line; but there is no doubt that its favourite habitat is in places where there are no policemen to be found on point duty, ready to take the names and addresses of the offenders, or drag them before the magistrates to be fined. For all that, however, the measure may do good. At least it may remind tourists that this most interesting of plants is in danger of extinction, and may induce them to refrain from buying it from the little children and old women who tear it up from mercenary motives. For men, the better way is to pick their Edelweiss for themselves; for ladies, the proper plan is to get men to gather it for them as a token of regard.

— **LEEDS PROFESSIONAL GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—We have received a copy of the rules and essay card of this Society, which has just been organised, and already consists of above forty members. Most of these were present at the inauguration dinner held on April 21st, at the Golden Cock Hotel, Kirkgate, Leeds. The toast of the evening was "The Leeds Professional Gardeners' Mutual Improvement Society," which was proposed by Mr. Wilkinson of Bradford, and suitably responded to by Mr. Tyson, Vice-Chairman of the Society. Saturday, April 23rd, was the first night for a paper, when Mr. Eichel, of Messrs. Charlesworth, Shuttleworth & Co., Bradford, gave a very interesting and instructive discourse on "Orchids and Orchid Collecting," describing the difficulties which collectors had to contend with in procuring the plants which they are in search of. He also alluded to the superstitions which exist in the different tribes, and to the modes of bartering with the natives with such articles as looking-glasses, brushes, cloth, and trinkets. Mr. Eichel exhibited several specimens to illustrate the various localities, climatic influences, and surroundings in which they were found. Several photographs by collectors added greatly to the enjoyment of those present. In enumerating the various species, the

essayist spoke of the Rev. F. D. Horner as one of the most enthusiastic and successful amateurs with whom he was acquainted, especially in the cultivation of the difficult but beautiful *Cattleya citrina*. A most interesting discussion followed the paper, after which a hearty vote of thanks was accorded Mr. Eichel for his valuable services, thus terminating the first of what, it is hoped, will be a series of interesting and instructive essays.

— **SCARCITY OF SLUGS.**—When I stated the opinion that slugs had suffered from frosts during the past winter much more than usual, several correspondents, including one in my own neighbourhood, cast doubts upon the correctness of my conclusions. They thought it must be too good to be true. Some time has elapsed since I first wrote upon the subject, quite enough to test the truth of my assertions, and I am glad to be able to state that I never remember such an absence of slugs, especially the small black species, at this time of the year. Hitherto nothing was safe from them. Now quite small Lettuces, Brussels Sprouts, Cauliflowers, and such plants are much as they were when put out a week or more ago, a showery time notwithstanding. We usually follow Brussels Sprouts with Celery, and if slugs are found anywhere it is on the ridges between the trenches. Most of the latter are already prepared, and several lines of tender young Lettuce plants dibbled along some of the ridges. Of these not one in thirty have been interfered with by slugs. That all of the latter have not escaped destruction I very well know, but what has become of the great majority? Have they "gone over," or simply shifted their quarters to "pastures new?"—I.

ACHIMENES.

FLOWERS "all the year round" must be provided in green-houses and conservatories, or the structures fail in the purpose for which they were erected. Perhaps the spring and early summer, or from the present time till July, is the period when such structures are in their zenith of beauty; for besides forced flowers, some of the finest genera of plants are in "fullest natural beauty" at the season named. But these families of plants—Cyclamens, Cinerarias, Calceolarias, and Pelargoniums—must have their successors, and the more distinct these are in habit and colour from the flowers blooming in the open air the more effective will they be when arranged in the houses.

Achimenes are thoroughly dissimilar from all outdoor-flowering plants in habit and the majority also in the colours of the flowers. The plants are, farther, of easy culture, provided they can, especially in the early stages of growth, be afforded artificial heat. Many valuable additions have recently been made to this handsome genus of plants, and no garden of importance can be considered completely furnished with summer decorative plants which does not contain a collection of Achimenes.

Where tubers are plentiful the work of producing fine pots, pans, or baskets of Achimenes is comparatively easy, for the tubers can be planted sufficiently close together that without any, or very little, stopping of the plants fine masses of growth and flowers can be obtained; but where tubers are scarce, as, for instance, in purchasing new sorts, greater cultural care is required to produce plants of an effective size the first season. Yet with even a limited number of tubers good plants may be perfected, as I will proceed to show.

Some years ago I ordered two dozen pots of Achimenes, which arrived during the first week of May. They were in 3-inch pots, each pot containing three plants about half an inch high. With this small beginning I determined to make as good an ending as possible, but did not anticipate the large results that followed. The tiny plants were growing in peat, and were placed on a shelf in the Cucumber house. They were carefully watered and syringed, and were slightly shaded in bright weather. When 3 inches high their points were taken out, and shortly, instead of having three shoots in each pot, I had in the case of some sorts six, and in others nine shoots. When these had pushed half an inch the plants were transferred into 5-inch pots in a mixture of two-thirds of peat and one-third of old Mushroom-bed manure, with a free admixture of sand and lumps of charcoal. After becoming established in these pots the plants were again stopped, and the shoots increased in number from fifteen to twenty-seven in each pot, according to the sort, some breaking three eyes and others two. The plants with careful attention grew rapidly and were pinched a third time, and some of them produced as many as a hundred shoots. These were trained thinly out from the first, so that each grew sturdily. The plants were eventually shifted into 8 inch pots, and were afforded a compost of loam, leaf mould, old Mushroom-bed manure, and bruised charcoal in equal parts.

By the end of June the plants were too large for the shelf

in the Cucumber house, and were moved to cold frames—that is, to frames having no artificial heat. A “cold” frame at that period is, however, really a warm stove if carefully ventilated and the sun heat conserved. On chilly nights the glass was covered for a time, and ventilation was as carefully attended to

were closed early each afternoon. Under this warm-frame treatment the growth was more vigorous than in the Cucumber house, and some of the plants were $3\frac{1}{2}$ feet in diameter in the autumn, and almost complete balls of flowers, the weaker-growing kinds being proportionately small, yet equally satisfactory. They were



FIG. 57.—A GROUP OF ACHIMENES.

as for a house of Vines or Melons in early spring. The plants were regularly sprinkled, also slightly shaded and kept as close as possible, provided the temperature did not exceed 85° . The ashes on which the pots were placed were also kept moist, and especially in the daytime when the sun was powerful. The frames

greatly admired by all who saw them, and few could believe that from three tiny tubers potted in spring such rich masses of fine flowers could be produced in the autumn.

The secret of my success in growing these plants may be expressed in two words—unremitting attention. I have grown

Achimenes for twenty seasons since, and have had unlimited supplies of tubers, but I have never had such fine masses as from the first small beginning alluded to. Tubers, soil, means, conveniences cannot compensate for anxious, solicitous personal care in the cultivation of these or any other family of plants. Those cultivators who succeed the best do not simply give orders and leave someone else to attend to the plants; and it was by simply working harder, paying closer and more thoughtful attention than usual to my small but precious stock of Achimenes, that they increased to such large dimensions.

When an article is plentiful it appears to lose value and does not receive that care to which its intrinsic merits entitle it. When we have plenty of Achimenes tubers we are apt to "take things easy," feeling a sort of self-satisfied consciousness that "that crop is at any rate safe." But we forget that it is on us as the cultivators, and not on the numbers of the plants, that success depends. We have plenty of tubers and we use them freely, sowing them almost like sowing seeds. We know that Achimenes start well in peat, therefore peat is used; but although the plants start well in peat, they do not always finish well in it, and hence it is that failures are common when tubers are plentiful—they are lavishly placed in soil that lacks sustaining power; twenty plants are perhaps raised in a pot that does not contain food for half the number, and a good beginning results in a bad ending. Achimenes, like most other plants having fine, hair-like roots, start well in peat; but when a large number of plants are placed in one pot—and the plan is an excellent one—the peat alone will not sustain them throughout their season of growth, and beneath the peat should be placed richer soil.

In potting the tubers when they are plentiful a mistake is often made in filling the pots too full of soil. That is a very simple matter, but is, nevertheless, the cause of many, if not of most, failures in plant culture. A first-class plant grower never makes a mistake of that kind. He provides his plants with soil, and also provides the means of keeping that soil replenished with food for his plants, and this cannot be done when the pots are filled too full. Before plants can have a sufficiency of food in a liquid state space must be afforded to hold the liquid. Achimenes when in free growth require much water, and frequently need more than they receive, simply because an inadequate amount of water-holding space is provided at the surface of the pots. Therefore when many tubers are potted in one, and possibly the flowering pot, let the drainage be ample, the soil rich and rough at the bottom, the surface light, and the pots not filled—if large, to within 2 inches of their rims. If that plan is adopted, too many tubers will not spoil the plants; but if it is not adopted—if the pots are filled quite full of light soil only—then the plants cannot receive the support which they need, and plenty (as is too commonly the case) ends in comparative failure.

Besides being adapted for cultivation in pots of various sizes, Achimenes are amongst the finest of basket plants. Baskets lined with moss and filled with suitable soil may be planted with tubers all round, and if the baskets are placed in a proper temperature and are carefully watered they will in a few months be perfect balls of flowers. White, mauve, and pink varieties, planted in mixture, have a charming effect.

A few of the best sorts of Achimenes are *Longiflora major*, *Longiflora alba*, *Stella*, *Williamsi*, *Advance*, *Dazzle*, *Ambroise Verschaffelt*, *Dr. Hogg*, *Carminata elegans*, *Eclipse*, *Margaretta*, *Pink Perfection*, *Sir Treherne Thomas*, *Purpurea elegans*, *Scarlet Perfection*, *Sparkler*, and *Aurora*. The above are moderate in price, and if well cultivated will add more to the adornment of the conservatory than almost any other summer and autumn-flowering plants. In fig. 57 the top spike is *Dazzle*, the dark flower *Longiflora major*, the white *L. alba*, and the striped variety *Ambroise Verschaffelt*.—S. G.

ROYAL HORTICULTURAL SOCIETY.

MAY 3RD, 1892.

THOUGH the Drill Hall was hardly so full as usual on this occasion there was an attractive display of Ferns and flowers. The Orchid display was small, but what it lacked in bulk was abundantly made up for by the exceptional character of the exhibits, a new *Cattleya* of great merit and two superb hybrids being placed before the Committee. A collection of seasonable garden produce from Frogmore also attracted attention and invited the approving remarks of visitors.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair), Dr. Hogg, and Messrs. John Lee, R. D. Blackmore, T. Francis Rivers, G. Bunyard, J. Cheal, W. Warren, G. Taber, A. Dean, J. Willard, J. A. Laing, G. Wythes, J. Hudson, H. Balderson, G. Norman, G. Reynolds, F. Q. Lane, and J. Wright.

Mr. J. Miller, The Gardens, Ruxley Lodge, Esher, sent dishes of Apples, a splendid dish of Noble Strawberry (cultural commendation), six Cucumbers (vote of thanks), and three dishes of fine Mushrooms

(cultural commendation). The Apples (fourteen dishes) were fine, but discoloured through sudden exposure to light from the dark room in which they had been kept.

A brace of Cucumbers, the result of a cross between Sutton's Prizetaker and Lockie's Perfection, from Mr. Castle, The Gardens, Castlemaus, Twyford, attracted attention by the evenness and rich green colour of the fruits, but it failed to obtain a certificate, probably because the fruit was two or three days too old. Mr. Leach, The Gardens, Albury Park, sent examples of Lettuce Veitch's Perfect Gem, sown on February 14th, and planted in a cold frame on March 11th. A vote of thanks was accorded. Mr. G. Wythes, The Gardens, Syon House, sent a box of very fine Brown Turkey Figs, and was unanimously accorded a cultural commendation.

Mr. John Lee placed on the table a dish of Plums that had been sent from Sydney, New South Wales. They were perfectly ripe, and in as good condition as if they had been gathered at Chiswick.

Mr. Owen Thomas sent from the Royal Gardens an admirable collection of produce, including a splendid dish of La Grosse Sucrée Strawberry, good Tomatoes, robust Seakale, perfectly matured Potatoes, fine Beans, Asparagus and Mushrooms, also Leeks, Cottager's Kale, Celery, and full, firm, compact-hearted Ellam's Early Cabbage, such as would be welcome in every garden at the present time, but are found in comparatively few. A silver medal was unanimously recommended.

Prizes were offered for Strawberries, but only one dish was forthcoming. This was from Mr. Gibson, gardener to H. Berkeley James, Esq., The Oaks, Carshalton—a dish of thirty fruits of Vicomtesse Héricart de Thury, for which the first prize was awarded.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), Rev. H. H. D'Ombraun, and Messrs. J. Laing, H. Herbst, R. Dean, C. F. Bause, T. W. Girdlestone, W. C. Leach, R. B. Lowe, W. Furze, W. Bain, C. E. Pearson, G. Phippen, C. Noble, J. Fraser, G. Paul, H. Turner, N. Davis, F. Ross, R. Owen, and B. Wynne.

The exhibits brought before this Committee were varied, and of an interesting character. Mr. H. B. May, Dyson's Lane Nursery, Upper Edmonton, sent a representative collection of Ferns, for which a silver Flora medal was awarded. This group included some good specimens of *Pteris cretica nobilis*, the graceful *Gymnogramma schizophylla gloriosa*, *G. peruviana*, *G. schizophylla erecta*, *Pteris moluccana*, a fine distinct species, and many others of a notable character. Mr. May also showed a small group of *Ficus elastica albo-variegata*. The plants were well grown and the foliage finely variegated. From the same source came blooms of a beautiful dark tree Carnation. These were of a large size and a rich crimson colour. S. T. Still, Esq. Lismore, Wimbledon Park (gardener, Mr. J. Curtis), sent a collection of seedling *Amaryllis* and a group of seedling *Auriculas* of various types. The latter included a noteworthy sulphur yellow variety named *Pride of Lismore*. Mr. Still also showed two small *Arisæmas*, which attracted some attention, and received a silver Banksian medal. W. Furze, Esq., Roselands, Teddington, sent blooms of a charming Tea Rose named *Waban*, a sport from Catherine Mermet. An award of merit was adjudged this exhibit, which is referred to below. A fine collection of Giant Fancy Polyanthus came from Mr. R. Dean, Ranelagh Road, Ealing, for which a silver Banksian medal was recommended. The plants were exceptionally well bloomed, and made a charming display. Mr. Dean likewise exhibited some Alpine *Auriculas*, amongst which a double yellow variety named *Golden Drop* was noticeable. This received an award of merit, and is described elsewhere. A hamper of coloured Primroses was also shown by Mr. Dean.

Messrs. J. Veitch & Sons staged a box of blooms of hybrid *Streptocarpus* which were "raised from seed sown in January, 1891." The plants, according to a statement on the show card, "flowered in July last, and are now flowering for the second time." The flowers were set in a groundwork of Maidenhair Fern, which showed up their beautiful and distinct colours. A vote of thanks was accorded. Two new *Tillandsias* named *Moensi* and *Massangeana superba* were also shown by Messrs. Veitch, and were certificated. These are more fully described below. A dwarf *Caladium* named *Souvenir de Paro* and a beautifully variegated leaved plant named *Aglaonema costatum* were similarly honoured. Cut blooms of a seedling *Saraca* (*Jonesia*), *Brownea Araza*, and *Macleania insignis* came from the Royal Botanic Gardens, Glasnevin, and were accorded a vote of thanks. A silver Banksian medal was awarded Messrs. H. Lane & Son, The Nurseries, Berkhamstead, for hampers of Polyantha Roses. These were densely flowered and highly attractive. The varieties shown were *Perle d'Or*, *Little Dot*, *Gloire de Polyantha*, and *Anna Marie de Montravel*, a beautiful white variety. A box of *Calceolaria* blooms came from Mr. H. Rapley, Hillingdon, and received a vote of thanks. The flowers were large and beautifully marked. Mr. T. Christy, Lime Street, E.C., showed a well-grown plant of *Ficus elastica*, which had been sent from Java in a Wardian case.

Messrs. B. S. Williams & Son, Upper Holloway, sent a collection of miscellaneous plants, which included some good *Amaryllises*, named *Duchess of Portland*, *Dazzle*, and *Lady Ardilaun*; also *Pandanus condensens*, a graceful-leaved plant; *Asparagus medicus*, Orchids, and *Dracæna Coulingi*. The last-named received a first-class certificate, and is mentioned below. Messrs. Laing & Sons, Forest Hill, showed a dwarf plant of *Lilium longiflorum* in bloom; and Sir Trevor Lawrence a spathe of *Anthurium Rothschildianum maximum*, which, however, did not appear to be specially recognised by the Committee. A remarkably fine plant of *Lotus peltorhynchus*, with growths 8 or 9 feet in length, was also shown by Sir Trevor Lawrence, and awarded a first-class certificate. This was in a suspended pot, and was covered with crimson

Clianthus-like flowers. A stand of a new seedling Carnation, named Florence Emily Thoday, came from Mr. T. F. Thoday, Willingham, Cambridge. This is a good white, but received no special reward.

Messrs. W. Paul & Son, Waltham Cross, staged a capital group of pot Roses, which included some recently introduced varieties of sterling merit. The best were White Lady (Hybrid Tea), Corinna (Tea), Danmark (H.P.), Duchess of Albany (H.P.), Medea (T.), and Sappho (T.). The two first-named were certificated, and are more fully described below. Messrs. P. Barr & Son, King Street, Covent Garden, sent a large collection of Narcissi and Tulips, which made a charming display. A silver Banksian medal was recommended. An attractive little variety, named Queen of Spain, was noticeable among the Narcissi, as also were Madame de Graaff and Glory of Leiden. The latter is a bloom of gigantic proportions, somewhat resembling the well-known Emperor, though larger. Many varieties of Narcissus Leedsii were also very good. A small group of a new dwarf Daffodil was staged by Mr. T. S. Ware, Tottenham.

In the competitive classes for the Barr medals H. J. Adams, Esq., Roseneath, Enfield (gardener, Mr. C. May), was first with one collection. The Rev. G. P. Haydon, Hatfield Vicarage, Doncaster, was second; and H. Berkeley James, Esq., The Oaks, Carshalton (gardener, Mr. J. Gibson), third. Mr. O. T. Hodges, Lachine, Chislehurst, was placed first for a collection of alpine plants, amongst which the beautiful *Primula viscosa* var., *Ranunculus amplexicaulis*, *Adonis vernalis*, and *Gentiana firma* were conspicuous.

ORCHID COMMITTEE.—Present: Dr. M. T. Masters (in the chair), Messrs. S. Courtauld, Jas. O'Brien, H. M. Pollett, N. Cookson, E. Handley, T. B. Haywood, Henry Williams, W. H. White, and Jas. Douglas. There were no large collections exhibited, but many of the plants and flowers shown were of exceptional interest. The two beautiful *Cattleyas* exhibited by Messrs. Sander and Farnham respectively would have alone sufficed to prevent the meeting being of a commonplace character, and in addition to them there were the remarkable and beautiful hybrids in which Messrs. Veitch and Cookson had combined *Lælia cinnabarina*, in the one case with another *Lælia*, in the other with a *Cattleya*. It is not a little strange that these splendid novelties should appear on the same day. W. G. Walker, Esq., Winchmore Hill, showed a spray of a *Gongora* with glistening white curiously formed lip; and also *Lælia Boothiana*, a richly coloured form, the lip deep carmine, the sepals and petals bright rosy mauve. A vote of thanks was accorded. Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, sent *Eriopsis biloba* with ten pseudo-bulbs and two flower stems. The blooms are about an inch across and of a bright bronze hue, the lip concave, light bronze, with a pale yellow protuberance dotted with purple. The column is bright green. A botanical certificate was accorded. They also had a large plant of *Stanhopea insignis* with two expanded blooms, and *Lælia grandis tenebrosa*. *Epidendrum nocturnum* came from the Royal Botanic Gardens, Glasnevin, and a vote of thanks was accorded. E. G. Wrigley, Esq., Victoria House, Dukinfield (gardener, Mr. Harris), sent three plants of *Dendrobium Phalaenopsis Schroderiana* in bloom. The Rev. E. Handley, 19, Royal Crescent, Bath, was accorded a vote of thanks for *Vanda teres*, a spray of four finely developed and coloured blooms being exhibited. The latter also showed *Lælia purpurata* in excellent condition, and received a vote of thanks for this also. T. A. Gledstones, Esq., Manor House, Gunnersbury (gardener, Mr. Denison), sent a freely flowered spray of *Cyrtopodium*.

Mr. N. C. Cookson, Oakwood, Wylam, sent a flower stem of *Cypripedium Rothschildianum* with six expanded blooms, and a spray of *Odontoglossum Andersonianum*, also the *Lælio-Cattleya* hybrid described below. Messrs. Sander & Co., St. Albans, received a botanical certificate for *Cynorchis flexuosa*, and they also had a freely flowered plant of *Oncidium Larkianum superbum*, together with other exhibits honoured by the Committee and described below. W. E. B. Farnham, Esq., Quorndon House, Loughborough (gardener, Mr. G. Cook), exhibited a small group of *Dendrobium Phalaenopsis Schroderiana* var. *amabilis*, a charming light-coloured variety, and a vote of thanks was accorded. Messrs. B. S. Williams & Son showed a plant of the beautiful *Odontoglossum citrosum album* in bloom.

CERTIFICATES AND AWARDS.

Tillandsia Mænsii (J. Veitch & Sons).—An erect-growing plant with recurving leaves. The foliage is a pale yellow colour, densely marked with dark green stripes and blotches (first-class certificate).

Tillandsia Massangeana superba (Messrs. J. Veitch & Sons).—This is a stiffer-looking plant than the last-named, but distinct in character. The leaves are of a yellowish-green shade, beautifully marked with chocolate-coloured blotches (first-class certificate).

Caladium Souvenir de Paro (Messrs. Veitch & Sons).—A dwarf-growing variety with small leaves, the centre of which were of a dull red colour, a green margin marked with yellow (first-class certificate).

Aglaonema costatum (Messrs. J. Veitch & Sons).—This is an attractive and distinct plant, with leaves about 4 inches long, and of a dark green colour covered with white spots, the midrib being also white (first-class certificate).

Dracaena Coulingii (Messrs. B. S. Williams & Son).—This is a cross between *D. Mooreana* and *D. terminalis alba*, and is likely to prove a useful plant for decorative purposes. It is graceful in habit, with tapering leaves, 1½ inch broad. The colour of the foliage is deep green edged with creamy yellow, more pronounced in the young foliage (first-class certificate).

Lotus peltorhynchus (Sir Trevor Lawrence).—A very attractive

plant with crimson *Clianthus*-like flowers. The specimen exhibited was suspended in a pot and had slender growths 8 or 9 feet in length. A small plant was shown at a previous meeting by Messrs. R. Veitch and Son, Exeter (first-class certificate).

Double Auricula Golden Drop (Mr. R. Dean).—This is a charming self variety of the Alpine section, the blooms being double and of a rich yellow colour. The plant exhibited had one truss which bore five flowers of medium size (award of merit).

Rose Corinna (Messrs. W. Paul & Son).—This is a charming Tea-scented variety. The specimen plants shown were standards having good heads and carrying a large number of fine flowers. When in the bud state and half expanded the blooms are of a delicate rose pink colour with a tinge of cream at the base of the petals (award of merit).

Rose White Lady (Messrs. W. Paul & Son).—A Hybrid Tea, nearly a pure white. Some blooms showed a faint tinge of pink in the outside petals. The flowers are large and globular in shape (award of merit).

Rose Waban (W. Furze, Esq.).—A most beautiful Tea-scented variety, of a bright pink colour in the bud, becoming lighter as the petals expand. The flowers shown were perfect in form (award of merit).

Lælia Latona (Messrs. Veitch & Sons).—This distinct and most beautiful form is a hybrid between *L. purpurata* and *L. cinnabarina*, and won great admiration. As in *L. purpurata* the petals are broader than the sepals, but not in the same proportion. The colour is old gold, faintly veined with crimson in the petals. The hybrid has a well marked *purpurata* lip, which is narrow and fimbriated, of a beautiful carmine-crimson hue, the exterior of the tube being deeply marked with the same colour. The front and edge of the lip are margined with yellow. The pseudo-bulbs are narrow and conical, the leaves linear oblong, 6 to 8 inches long (first-class certificate).

Cattleya Philo var. *albiflora* (Messrs. J. Veitch & Sons).—This, like *C. Philo*, exhibited on April 19th, was obtained by crossing *C. tricolor* with *C. Mossiæ*, and follows the former in its general characters. The sepals and petals are white with a very faint blush suffusion; the lip pale magenta, broadly edged with white, the throat pale yellow with streaks of magenta in the tube (award of merit).

Lælio-Cattleya Phæbe (Mr. N. C. Cookson).—A remarkable and very beautiful hybrid, obtained by crossing *Cattleya Mossiæ* with *Lælia cinnabarina*. The *Mossiæ* parentage is traceable in the lip, which is rich velvety crimson with lighter glossy patches. It is beautifully fimbriated and margined with yellow. The tube does not, as in the other hybrid, share the rich colouring of the lip externally, but is pale yellow with crimson veins. The petals are deep yellow clearly veined, and the sepals are brighter, approaching orange. The hybrid has slender conical pseudo-bulbs and linear oblong leaves 6 to 10 inches long (first-class certificate).

Phaius Sanderiana (Messrs. Sander & Co.).—A fine and very distinct species. The spike was not developed, only one bloom being open. This is striking in appearance; it is of large size, the sepals and petals about equal in size, and in colour brownish red. The lip is white with patches of bright rose in the centre surrounding a brownish stripe. The throat is deeply coloured with deep magenta. The flower spike was nearly 3 feet high (award of merit).

Cattleya Victoria Regina (Messrs. Sander & Co.).—Even amongst the many interesting exhibits present this attracted special attention. It is a superb form, the sepals and petals being of a beautiful rosy mauve, and the lip most richly coloured with magenta carmine. It broadens from the tube, and is flattened, rounded, and fimbriated. Imported specimens were also exhibited, and show that the species has long pseudo-bulbs, surmounted by very stout oval-shaped leaves in twos and threes (first-class certificate).

Cattleya Mendeli, *Quorndon House variety* (W. B. Farnham, Esq.).—This is a magnificent variety with enormous flowers, the petals very broad, and, like the sepals, white with a faint blush suffusion. The lip is beautifully fimbriated, pure white, the throat marked with brownish yellow and rose. A grand plant was shown in a 10-inch pot, and well merited the cultural commendation that was awarded (first-class certificate).

CHURCH DECORATIONS.

I NOTICE in your issue of April 14th a short report respecting the decoration of churches. It interested me very much, because this is a thing which I have watched for some years. In some instances I have wondered where it would end, and how the people could call it decorations when the font, pulpit, and reredos, and other portions of the church, were perfectly hidden by evergreens and flowers. I have often asked the question why ladies should insist on decorating the beautiful carvings of the reredos and cornices when there are always plenty of other places in every church which can be improved by placing plants in pots in, and, as your correspondent says, a well-arranged group round the lectern, also on either side of the Communion table, is very effective.

I have never seen a church decorated with better taste than the one I attend—viz., Holy Trinity, Watermoor, Cirencester. Any attempt to hide the beautiful little reredos in this church is strictly forbidden. The arrangement on Easter Sunday last was very beautiful indeed. On each side of the Communion table was a group of *Arum Lilies* in pots, interspersed with *Nicotiana affinis*, well flowered, and edged by Ferns. On the cornice of the reredos immediately behind the Communion table were placed ten vases—eight small and two larger ones. The latter

were filled with Arum Lilies, Narcissi (poeticus type) and white Roses; the former with Narcissi in variety, Roses, and other flowers. The string course round the chancel was decorated with Narcissi of various kinds. The Ajax type, together with the Cernuus varieties, made a very effective display; these were set in moss and Ivy. Around the lectern were more Arum Lilies, Nicotianas, and Palms. The font was decorated with white flowers in moss and Fern. Great care seemed to have been taken not to overcrowd in any part, and none of the ornamental portions of the church was hidden. This I call sensible church decoration.—T. A.

MORÆAS.

At first sight most of the Moræas would be considered to be Irises, and to casual observation they present few distinguishing characters; but on examining them we at once find them distinguished from the



FIG. 58.—MORÆA SISYRINCHIUM.

true Irises by their bulb-like root, thus approaching the bulbous Irises (Xiphions). On a further examination, however, it will be observed that the root of the Moræas is solid or corm-like, and not formed in layers, as it is in the Xiphions. The species can be grown in pots or planted out, but the former is preferable, light soil being employed, and providing good drainage. Large pots are not necessary; 3-inch or 5-inch suit them well, placing several bulbs in each. Supply water judiciously, but when growing or flowering they must not be allowed to become dry, and even in the resting period withholding water must not be carried to excess.

M. sisyrinchium is a beautiful species, a native of South Europe and the Mediterranean region, and has long been known as Spanish Nut, because it is said that in Spain the children eat the root as a nut, of which it is suggestive in form and brownish colour. It was known to the old writers Gerard and Parkinson, and has therefore been in cultivation in this country nearly three hundred years. The flowers are very handsome, though fugitive, the larger perianth segments being bright deep blue marked with white and yellow in the centre, the other divisions of the perianth also being blue, but of a lighter tint. The woodcut (fig. 58) portrays the chief floral characters, well showing the general form. The flowers are usually produced in spring, about May.

M. Tenoreana is a European species, but was not introduced to England until 1824. It is scarcely less beautiful than *M. sisyrinchium*,

though the flowers are smaller, but the colour is very rich. The divisions of the perianth are narrow, the upper half being deep blue, and the lower towards the centre yellow and white with a few dark spots. It flowers fully a month later than the preceding, and forms a welcome succession.

M. edulis was one of Loddiges' introductions from the Cape of Good Hope to England, but it is said to have been known in Holland for many years. It was originally found by Thunberg abundantly in the neighbourhood of Cape Town, chiefly in low positions and in sandy soil. The flowers vary in colour, but are mostly of a pinkish hue marked with blue and white, the divisions of the perianth being neatly rounded. One very pleasing character the flowers possess—namely, a most agreeable though delicate fragrance. Fig. 59 faithfully represents a flower and leaf.

Three other species that deserve growing are *M. ramosa*, with comparatively large flowers, bright yellow with a dark blotch at the base of the petals; *M. ciliata*, with small bright red flowers, rounded petals, and a yellow centre blotch; and *M. papilionacea* with bright orange-coloured fragrant flowers, which are produced a little later than *M. sisyrinchium*. These with the preceding form a good half dozen, and fairly represent the genus.

NATIONAL AURICULA SOCIETY.

NORTHERN SECTION.

THE Northern Show, like that in the south, was better than was expected, though many flowers were little more than just ready; while in cold districts, like Halifax and Todmorden, Auriculas were hardly in flower at all. At this date, May 2nd, we all have many plants with newly opening buds, mostly among the green and white-edged classes. These will soon be out and over if warm May weather comes. It has been the long spell of cold nights during March and April that have so seriously interfered with the timely growth and development of Auriculas. It is impossible to keep an east wind a secret from these plants, they seem conscious of it through any amount of protection. In the classes for six, four, and two Auriculas the places were well filled, but in those for single blooms there were fewer plants than usual to grace the background.

The Exhibition was held at the Town Hall, Manchester, on Tuesday, April 26th, and the awards were as follows:—Class A, six dissimilar Auriculas.—First, Rev. F. D. Horner, Kirkby Lonsdale, with *Hypatia* (Horner), white edge; Rev. F. D. Horner (Simonite), green edge; Ossian (Simonite), green edge; Heatherbell (Simonite), white edge; Dusk (Horner), black self; and Samuel Barlow (Bolton), grey edge. Second, Mrs. Kyrke Penson, Ludlow, with *Conservative* (Douglas), white edge; Rev. F. D. Horner, Acme (Reed), white edge; Dinham (Penson), grey edge; Heroine (Horner), dark self; and Colonel Taylor (Leigh), green edge. Third, Mr. G. Middleton, Prestwich, with *Lady Ann Wilbraham*, green edge; *Black Bess* (Woodhead), self; George Rudd (Woodhead), grey edge; *Trail's Beauty*, grey edge; *Sapphire* (Horner) self; and Acme. Fourth, Miss Woodhead, Halifax, with *Rachel* (Woodhead), grey edge; Rev. F. D. Horner, *Black Bess*, Mrs. Potts (Barlow), self; *Imperator* (Litton), green edge; and Acme. Fifth, Mr. Irving Hind, Halifax, with Acme, Mrs. Potts, *Prince of Greens* (Trail), green edge; *Sapphire*, *Black Bess*, and George Lightbody (Headly), grey edge. Sixth, Mr. J. Clements, Birmingham, with *Negro* (Mellor), dark self; Heatherbell, George Lightbody (Headly), grey edge; Heroine, Mrs. Potts, and Lancashire Hero (Lancashire), grey edge. Class B, four dissimilar Auriculas.—First, Rev. F. D. Horner, with Rev. F. D. Horner, *Aspera* (Horner), grey edge; *Snowdrift* (Horner), white edge; and Mrs. Potts. Second, Miss Woodhead, with Mrs. Dodwell (Woodhead), *Prince of Greens*, George Rudd, and Mrs. Potts. Third, Mr. H. Wilson, Halifax, with *Rachel*, James Hannaford (Simonite), green edge; Mrs. Dodwell, and Mrs. Potts. Fourth, Mrs. Kyrke Penson, with *Conqueror of Europe*, grey edge; Mrs. Potts, Acme, and Rev. F. D. Horner. Fifth, Mr. Irving Hind, with George Lightbody, *Black Bess*, John Simonite (Walker), white edge, and *Prince of Greens*. Sixth, Mr. James Wood, Stalybridge, with *Confidence* (Campbell), grey edge; *Mayflower* (Traill), green edge; *Frank Simonite* (Simonite), white edge; Mrs. Douglas, self. Seventh, Mr. J. Clements, with Acme, Lancashire Hero, Heroine, and Rev. F. D. Horner.

Class C, pair of Auriculas.—First, Mr. Ben Simonite, Sheffield, with *Jenny Crossland* (Simonite), white edge, and *Mélanie* (Horner). Second, Mr. W. H. Midgley, Halifax, with *Trail's Beauty* and *Black Bess*. Third, Mr. T. Buckley, Stalybridge, with *Frank Simonite* and *Black Bess*. Fourth, Mr. E. Shaw, Moston, with Geo. Lightbody and Heroine. Fifth, Mr. J. Stelfox, Stalybridge, with Heroine and Grey Friar (Llewellyn). Sixth, Mr. S. Barlow, Stakehill, Castleton, with two seedlings. Seventh, Mr. J. Beswick, Middleton, with General Niel and unknown. Class D, pair of Auriculas (maiden growers only).—First, Mr. W. H. Midgley with John Simonite and Geo. Lightbody. Second, Mr. G. Stokes, Birmingham, with Geo. Lightbody and Mrs. Potts. Third, Mr. T. Barrow, Rock Ferry, with Acme and *Lovely Ann*. Class E, Alpine Auriculas, four dissimilar.—First, Mr. J. Beswick with John Ashton, Fred Beswick, Dr. Knott, and John Allen. Second, Mr. J. Clements with Mrs. Ball, Edith, Sunrise, and Unique. Third, Mr. G. Stokes with Minnie, Diadem, Unique, and Mrs. Dodwell.

Class F, Auriculas, single plants, green edges.—First, Rev. F. D. Horner, with Shirley Hibberd (Simonite). Second, Rev. F. D. Horner, with *Touchstone* (Horner). Third, Rev. F. D. Horner, with Rev. F. D.

Horner. Fourth, Mrs. Kyrke Penson, with Colonel Taylor. Fifth, Rev. F. D. Horner, with Brilliant (Horner). Sixth, Rev. F. D. Horner, with Commander (Horner). Seventh, Mr. J. Taylor, Chester, with Prince of Greens. Eighth, Miss Woodhead, with Imperator. Class G, single plants, grey edges.—First, Mrs. Kyrke Penson, with Dinham. Second, Mrs. Kyrke Penson, with Richard Penson. Third, Rev. F. D. Horner, with Alex. Meiklejohn (Kay). Fourth, Rev. F. D. Horner, with Saml. Barlow. Fifth, Miss Woodhead, with Rachel. Sixth, Rev. F. D. Horner, with Irreproachable (Horner). Seventh, Mrs. Kyrke Penson, with seedling. Eighth, Miss Woodhead, with Geo. Rudd. Class H, single plants, white edges.—First, Rev. F. D. Horner, with Atalanta (Horner). Second, Miss Woodhead, with Acme. Third, Rev. F. D. Horner, with Nydia (Horner). Fourth, Miss Woodhead, with Mrs. Dodwell. Fifth, Mr. H. Wilson, with John Simonite. Sixth, Mr. H. Wilson, with Snow-drift. Seventh, Mr. John Taylor, with Heatherbell. Eighth, Miss Woodhead, with Reliance (Mellor). Class I, single plants, selfs.—First,

S. Barlow. Class S, twelve Fancy Polyanthus, dissimilar.—First, Mr. S. Barlow. Class S, twelve Primroses, dissimilar.—First, Mr. S. Barlow.



FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Houses.*—In the house closed early in December the very early varieties, Alexander and Waterloo, have the fruit ripe and ripening; that of Hale's Early, Royal George, and Stirling Castle is now swelling and colouring fast. A circulation of air is necessary to secure flavour, but care must be taken not to dry the air too much by admitting cutting winds. Elevate the fruits well above the foliage by placing laths across the wires for them to rest upon. Allow no more shoots than are needed for next year's supply of fruit and the extension of the trees, as crowding prevents the proper development of the wood and buds, and hinders their maturation. Continue syringing until the fruit commences ripening, and be careful to employ water that will not leave a stain upon the fruits. It is well to use clear rain water, for stained fruit has not a good appearance. Water inside borders well, covering them with a little light non-conducting material, such as partly spent manure, which will keep in moisture until the crop is gathered. Avoid making the soil sodden by needless waterings, for this has a prejudicial effect on the roots, conduces to lack of flavour in the fruits, and encourages an undue amount of spray. Attention must be given to outside borders. Remove part only of the covering to let the roots have the benefit of warmth and air, leaving enough to prevent chill and secure uniform moisture.

Trees Started Early in the Year.—Whilst stoning, which is progressing towards completion, the trees must not be subjected to a higher temperature than 60° to 65° by artificial means, commencing to ventilate at 65°, and not allowing 70° to be exceeded without a free circulation of air. If the shoots are crowded thin them well after the stoning is completed, tying them in as the growths advance. Allow no more than can have full exposure to light, pinching laterals to one leaf. Thin the fruit to the requisite number when stoned; one fruit to each shoot of last year, or two fruits on vigorous shoots, are a full crop, and they must be apportioned so as to maintain equal vigour throughout the trees. After stoning maintain a good moisture in the house, watering the inside border copiously, supplies in well drained borders being required not less frequently than once a week; mulch with not more than a couple of inches thickness of short half-decayed stable manure. If it be desired to accelerate the ripening of the fruit, a night temperature of 65° to 70°, 70° to 75° by day artificially, may be maintained, with 80° to 85° from sun heat, closing early so as to run up to 90° or 95° with abundance of moisture. In such a temperature the fruit swells to a large size, and with thorough exposure to light, raising the fruit with the apex to the sun, drawing the foliage aside or shortening it, the appearance is more tempting than that of fruit ripened in a somewhat lower temperature. When the fruit is not needed for any given purpose or time it is advisable to continue the temperature at 60° to 65° at night, and 65° artificially by day in dull weather, and 75° with sun heat, closing at the latter with plenty of moisture in the house.

Trees Started in February.—The fruit is now advanced sufficiently to admit of its reduction to the number, or a few more to meet casualties, required for the crop. Two fruits may be left on strong shoots, one only on weak growths, reserving the best situated for receiving air and light. Thin the shoots to the required number for furnishing next year's crop and furnishing the trees, allowing no more than can have a fair amount of exposure, not needlessly wasting space nor crowding the growths. The fruit colours best, and is highest in flavour, when subjected to full light from the commencement. Maintain the temperature by artificial means at 55° to 60° at night, 60° to 65° by day artificially, ventilating at 65°, and fully at 70° to 75°. Syringe the trees well twice a day in bright weather, but when dull an occasional forcible syringing is preferable to keeping the trees constantly dripping with water. Weakly and full-cropped trees should be assisted with liquid manure or surface dressings washed in, but strong growing trees will only make more growth and stone worse from the use of stimulants.

Trees Started in March.—There is nothing gained by delaying thinning the fruit, but it should be attended to early and gradually followed up from the time that the best fruits can be decided upon, they taking the lead in swelling, leaving two or three on strong shoots, and one or two on those less vigorous. Ventilate freely on all favourable occasions, fire heat only being necessary to prevent the temperature falling below 50°, and maintain it at 55° by day. Syringe the trees so as to keep them free of insects. Supply liquid manure to weakly trees, but employ it sparingly or not at all to vigorous trees, which are more prone to cast the fruit in stoning. Remove all shoots that are not required for next year's bearing, for furnishing the trees, or for attracting the sap to the fruit, stopping the latter at two or three joints of growth, and to one afterwards, tying the remaining growths to the trellis as they advance.



FIG. 59.—MORÆA EDULIS.

Rev. F. D. Horner, with Enchantress (Horner). Second, Rev. F. D. Horner, with Juno (Horner). Third, Miss Woodhead, with Mrs. Potts. Fourth, Miss Woodhead, with Black Bess. Fifth, Rev. F. D. Horner, with Ophelia (Horner). Sixth, Rev. F. D. Horner, with Dimple (Horner). Seventh, Mrs. Kyrke Penson, with Charles Perry (Turner). Eighth, Mr. B. Simonite, with seedling. Premier Auricula in the whole Exhibition.—The Rev. F. D. Horner's Ossian (Simonite), in green edge. Class K, Alpines, single plants, yellow centres.—First, second, third, fourth, and fifth, Mr. J. Beswick. Class L, Alpines, single plants, white centres.—First, second, and fifth, Mr. J. Beswick. Third, Mr. G. Stokes. Fourth, Mr. J. Clements, Class M, three Polyanthus, black grounds (dissimilar). First, Mr. J. Beswick. Second, Mr. T. Barrow. Third, Mr. G. Thornley, Middleton. Fourth, Mr. G. Middleton. Fifth, Mr. S. Barlow.

Class N, three Polyanthus, red grounds, dissimilar.—First, Mr. J. Beswick. Second, Mr. G. Thornley. Third, Mr. S. Barlow. Fourth, Mr. G. Middleton. Fifth, Mr. T. Barrow. Class O, Polyanthus, single plants, red grounds.—First, Mr. J. Beswick. Second, Mr. G. Thornley. Third, Mr. S. Barlow. Fourth, Mr. J. Beswick. Fifth, Mr. S. Barlow. Sixth, Mr. G. Thornley. Seventh, Mr. S. Barlow. Class P, Polyanthus, single plants, black grounds.—First, Mr. J. Beswick. Second, Mr. T. Barrow. Third, Mr. G. Thornley. Fourth and fifth, Mr. J. Beswick. Sixth, Mr. S. Barlow. Seventh, Mrs. Kyrke Penson. Class R, twelve Fancy Auriculas, dissimilar.—First, Mr.

Latest Houses.—The fruit in these may be timed to come in quite as late as that on wall trees by attention to ventilation, admitting air freely and fully above 50°. Proceed with disbudding and heeling in the shoots, thinning the fruit unflinchingly, but with due regard to that properly fertilised, which takes the lead in swelling. Examine all inside borders at least once a week, giving supplies of water when necessary. Syringe the trees twice a day except when the nights are likely to be cold and the trees are vigorous, these requiring to be kept drier than others that are smaller and thinner in foliage. All syringing should be practised so early as to allow the foliage to become fairly dry before night. Early closing may be practised in unheated houses with a view to husband the sun heat, but the foliage must not be wet at night.

CHERRY HOUSE.—With the fruit ripening syringing must cease, the fruit being kept dry, but atmospheric moisture must be furnished by keeping the surface of the borders moist, damping them with the syringe, and admitting air constantly, as if condensation take place the fruit is seriously affected, cracking, and becoming impaired in quality. Damping the border is calculated to mislead as regards its condition; at this stage it must be quite moist, and if necessary a thorough supply of water must be afforded without delay. Tie in the shoots as they lengthen, and stop those not required for training in at about the fifth leaf. If black aphides are troublesome dip the infested shoots or leaves in tobacco water, rubbing them gently with the fingers whilst wet. Ventilate freely on all favourable occasions, having recourse to the heating apparatus when the external conditions are unfavourable to insure a circulation of warm rather dry air. Trees in pots require abundant supplies of water and nourishment. Place some netting over the ventilators to prevent birds attacking the Cherries.

MELONS.—The atmosphere should be dry and well ventilated after the flowers appear, fertilising the female blossoms when fully expanded, stopping the shoot one joint beyond the fruit. This should be persisted in daily until the number required are secured on each plant, not allowing one fruit to take the lead, but having them all on as nearly an equal swelling as possible. Do not spare the knife after the fruit has commenced swelling, but keep the principal leaves fully exposed to light, attending frequently to stopping the laterals. Maintain plenty of moisture where plants are swelling their fruits, syringing the walls as well as the plants about 3 P.M., damping the floors several times in hot weather. Afford water or liquid manure about twice a week. The night temperature should be maintained at 65° to 70°, 70° to 75° by day from fire heat, and 85° to 90° with sun. Ventilate freely, but avoid admitting too much air at a time so as to reduce the temperature, commencing at 75°, increasing or diminishing it with due regard to external influences. When the fruit is full-sized and advanced for ripening gradually reduce the supply of water at the roots, but not so as to cause the foliage to flag, afford a circulation of warm air, and keep rather dry when ripening. Cracked fruits are produced by a close moist atmosphere, with too much water at the roots. If any fruits show a tendency to crack cut the shoots about half way through with a knife a few inches below the fruit, lessen the supply of water at the roots and also the atmospheric moisture. Shade only to prevent flagging. If thrips appear fumigate on two or three consecutive evenings. For red spider brush the hot-water pipes with a cream of flowers of sulphur and skim milk. Plants in pits and frames should have the growths regulated and trained, keeping them rather thin. Plants swelling off their fruits should be well earthed and the laterals thinned and pinched, placing the fruit on pieces of slate. Maintain a good top and bottom heat by linings, and employ thick coverings over the lights at night.

CUCUMBERS.—Aphides sometimes become troublesome, and are best subdued by tobacco smoke, taking care not to give an overdose, having the foliage dry but the floor well damped; the latter is especially necessary where there is white fly to contend with. Soapy applications are not safe to apply to Cucumber foliage. For this pest fumes of sulphur are as effective as against red spider. The sulphur must be employed carefully, as an overdose on hot-water pipes at a high temperature is as fatal to the plants as the pests are. Plants in bearing all the winter will now be showing signs of exhaustion, and would be best removed, cleansing the house, providing fresh soil, and putting out young plants without delay. Remove the male flowers from young plants and most of the first fruits, stopping at two or three joints beyond the fruit, removing all weakly and unnecessary growths. Little or no fire heat will be required by day, shutting the valves at about 8 A.M. and opening them again at about 4 P.M., maintaining a good moisture by damping available surfaces in the morning and at closing time. Sow seed for raising plants to occupy pits and frames. A fair amount of bottom heat should first be secured by using the less decomposed material from Rhubarb, Seakale, Vine borders, or exhausted hotbeds, which, with about a fourth of fresh material, will afford all the bottom heat now required. The linings of beds made up some little time must be attended to, renewing as required. Close early, so as to run up to 90° or more, and protect well at night.

THE FLOWER GARDEN.

HARDENING BEDDING PLANTS.—In order to make room for the more tender plants no time should be lost in hardening off all Zonal Pelargoniums well established in pots or boxes. They must not be too quickly exposed to all weathers, and considering that heavy cold rains and hailstorms are very injurious to them, the best form of protection that can be used, next to old lights, are large wooden shutters. The latter are handy for a variety of purposes, and should be found in most gardens. Make good use of them for warding off cold rains as well as

frosts. Avoid over-watering plants when first turned out of houses or pits. Verbenas, Lobelias, Ageratums, and Heliotropes also suffer severely if they are very cold and wet at the roots, more especially when placed in rather deep boxes, and only the strongest of the two former should be placed out of doors as yet, being then well protected. Calceolarias are very much hardier, and whether placed singly in 5-inch pots or in boxes, or better still temporarily bedded out in rich light soil, they will need little protection, but must be kept well supplied with water at the roots.

PROPAGATING.—There is yet time to root a considerable quantity of plants, and when abundance are raised the work of arranging and planting the beds and borders is much simplified. Soft tops of Heliotropes root in a close warm frame, or in a box covered with glass and set in fairly brisk heat, in a few days, as also do Verbenas, Tropæolums, Iresines, Coleuses, and Alternantheras, stocky little plants being got ready by bedding-out time. These late-propagated plants can, if necessary, have the small pots and boxes newly emptied of the hardier or more forward plants, and if kept in gentle heat till well rooted into the fresh soil will eventually bed out surprisingly well. After pits have been cleared of early vegetables or Violets they might be got ready for propagating purposes. In some cases there will be enough heat left in the old hotbed underneath, in others a slight renewal will be necessary. With the aid of short heating material below, raise about 4 inches of fine light soil well up to the glass, and face the latter with sharp sand. In this dibble short, soft cuttings of Verbenas, Iresines, Alternantheras, and such plants about 3 inches apart each way, give a gentle watering, and keep close till rooted. Shade from bright sunshine, freshen up with water occasionally, and cover with mats during the night. When growing freely pinch out the points of the strong growers, and a number of capital plants will soon be fit for transplanting direct to the flower beds. This plan is particularly to be recommended where many thousand plants are required for the beds and borders, and it obviates the use of either boxes or pots.

BEDDING PLANTS FROM SEED.—Ageratums, Lobelias, Zinnias, Asters, Stocks, Pinks, Gaillardias, and other plants raised from seed ought not long to be kept thickly together in pans or boxes, starvelings rarely recovering properly; all should therefore be temporarily bedded out in pits and frames (rough or otherwise), and if they do not have time to make much top growth they will form fresh roots, and will transplant all the more readily. French and African Marigolds sown thinly now in boxes of light soil and placed in gentle heat will germinate very quickly, and be quite large enough for the beds early in June. Sunflowers, notably the miniature forms, may yet be raised thus, these also moving out of seed pans and boxes without experiencing a severe check. Love-lies-bleeding moves well out of seed pans, and a back row of this annual is fairly effective in borders. The extremely showy bedding Nasturtiums may yet be raised, and are particularly well adapted for poor hot soils. Raise the plants singly in small pots. It is not too late to sow seed of Ricinuses and Japanese Maize, both being noble border plants. Sow the seed singly in 2½-inch pots, and place in heat to germinate.

VIOLAS.—These are most showy early in the season, but by good culture they can be kept gay throughout most summers. Young plants raised and treated much the same as shrubby Calceolarias are the best for summer bedding, though much may be done in the way of dividing old plants. The former must not be allowed to remain in frames or closely packed anywhere, nor should they be permitted to greatly weaken themselves by flowering now. It is not wise to delay finally planting them out till the more tender plants are ready for the beds or borders. The site for them ought to be specially prepared, being early manured and deeply dug, for they are moisture-loving plants, mildewing badly if starved at the roots. Plant out or divide and replant the old plants now, at all events where possible, and this whether they are to edge beds or to form a groundwork for variegated and bronze Pelargoniums, Iresines, and others. Mulch with either short manure, leaf soil, or spent tan, and pick off all the flower buds as they form. Thus treated they will push up strongly from the base of the plants, and a good summer display result.

DAHLIAS.—Too often extra strong old roots are planted intact, whereas sturdy single stems, with few or no tubers, give much the best results. The former push up numerous growths, which only serve to weaken and smother each other, but the single stems branch freely and flower early and profusely. It pays well to shift rooted cuttings from small into 6-inch pots, fine strong plants being thereby prepared for the borders. Old clumps may with advantage be freely split up when the shoots are about 3 inches long, one or two tubers retained with each shoot being ample. Place these divisions singly into 6-inch pots, and keep them under glass till the fresh soil is well occupied by roots. They will make good stuff by the end of May. Plants obtained by post from a distance are necessarily small, therefore order early and establish them in pots prior to transferring to borders. This will give them a fair chance, and a much earlier display will be obtained. Even those obtained in small pots should be had early and given a shift.

THE KITCHEN GARDEN.

ASPARAGUS.—This promises to be plentiful and good, and in most localities cutting will have already commenced. A good length of stem adds considerably to the appearance and value of Asparagus, and in order to secure this, without the points being unduly run out, draw where possible some of the light surface soil into little mounds immediately over the clumps. The time taken up in moving this with the

hand, tracing the shoots down to the roots, and either cutting, or better still, twisting them off, then returning the soil, is short and the superior produce more than repays for expending it. Newly cut Asparagus is the most tender and succulent when cooked, standing the bundles for some hours or days in pans of water having a hardening effect. It is advisable, however, to keep well established beds closely cut, large and small shoots being alike removed, the latter if left only forming small basal buds, and to sort over, bundle up neatly and to stand either on damp moss or in shallow pans of water in a cool place. Never mix large and small together and thereby spoil the appearance of the whole, but reserve the small for soups.

YOUNG ASPARAGUS BEDS.—It is most unwise to commence cutting from beds that were formed since, say, the spring of 1890, and in not a few cases it pays well to let the plants have three clear seasons' growth prior to cutting from them. They ought to be assisted in making an early and strong growth, with a view to building up crowns capable of yielding the finest produce when the time has arrived for cutting. Starting with two-year-old, or even older roots, does not greatly advance matters, for the simple reason that younger plants not unfrequently make the best progress after removal. A very light sprinkling of salt will benefit young plantations in all cases where the soil is of a light character, but should not be applied to clayey soils, or it will do much more harm than good. Slugs are very partial to the young shoots, and are responsible for many failures. Therefore anticipate their attacks by frequently dusting over the beds with soot and lime, stirring between the rows with a Dutch hoe also being beneficial. It is not yet too late to form fresh beds or to make good any blanks in those formed in this or preceding seasons, and it is preferable to do this now than to wait till next spring. Transplanting may be successfully practised when the first formed shoots are 6 inches to 12 inches in length, especially if every precaution is taken to prevent the delicate root fibres from being wholly dried up or destroyed. If there are more young plants in the seed rows than are required for making or completing permanent beds, put them out on good ground, 12 inches asunder in rows 2 feet apart, and they will in the course of two or three seasons make grand stuff for lifting and forcing.

KIDNEY BEANS.—Houses are becoming too hot and crowded for these, and where possible the supplies ought now to be forthcoming from plants in gently heated pits. According as Potatoes are cleared out follow closely with Beans, transplanting these either from small pots or boxes. It is false economy to plant thickly, a few rows, or not more than two in a light, producing far more Beans than three would do. Lightly stake at once. Keep close and warm, well syringing the walls and bed in hot weather, this being done when the pits or frames are closed early in the afternoon. When growing strongly give plenty of air, and keep well supplied with moisture at the roots. It also pays well to raise a number of plants in small pots for planting in handlights or shallow rough frames on warm borders, and a row of plants might also be grown at the foot of a south wall, some light protection being afforded these during cold nights. Ne Plus Ultra, Osborn's Forcing, and Sion House are among the best varieties for either frame culture or the warm borders. Sow seed of one of these early sorts, and also of Canadian Wonder, to afford a close succession on a warm border, the former in drills 18 inches apart, and the latter 2 feet apart. Any now coming through the soil must be protected whenever frosts are imminent, or they will be lost.

RUNNER BEANS.—Unless wanted particularly early, the cultivators being prepared to expend some trouble in protecting, it is not advisable to sow seed of these before the first week in May, and even that may be ten days too early in some low lying localities. They are essentially moisture-loving plants, and are liable to fail early in hot and dry positions. They ought, therefore, to have a deep and well manured root run, the site chosen being conveniently near to a good water supply, or at any rate where plenty of water and liquid manure can be carted to them whenever necessary. If the whole of the ground has not been trenched then double dig a width of not less than 2 feet, this being done somewhat after the style Celery trenches are formed, only more of the surface soil should be returned, and the sides not left so square. Sow the seed either in single lines or in double lines with 9 inches between them, and if more than one long row is grown let them be not less than 6 feet apart, 9 feet being none too much when extra tall stakes are used. Crop between the rows with early Potatoes, Cauliflowers, or Cabbage, all of which will come off before being unduly shaded by the Beans.

PEAS.—Successional sowing of midseason and late varieties should be made at about fortnightly intervals. Seeing that they will most probably have to withstand hot and dry weather let these have the benefit of either freely manured and trenched ground, or else trenches prepared much as advised for Runner Beans, sowing immediately over old Celery trenches being another way out of the difficulty. Avoid sowing too thickly, those that have a chance to branch freely being the most profitable, crowding the rows being another mistake. Let the latter be fully as far apart as the known height of the varieties sown. Mould up and early stake the more forward rows, allowing these to fall about the ground for want of supports being most unwise.

POTATOES.—Advantage ought to have been taken to fine down and further loosen the soil between rows of early Potatoes, moulding-up following closely, or as fast as the haulm shows through the ground. All the moulding-up should at this early date be done in the morning, in order that the newly moved soil may have a chance of becoming warmer and drier before night, this frequently making a material

difference in the effect of frosts. The most critical time is when the haulm is just coming through the ground, and if badly frosted then the recovery is doubtful, whereas if they have been once soiled up the stems may be saved and an early recovery take place. Rough protection ought to be afforded those more advanced—hoops or frameworks of poles and mats, inverted flower pots with drainage holes stopped, or even branches of evergreens being capable of protecting them from moderately severe frosts.

SEEDS TO BE SOWN.—In all but the coldest districts the first week in May is quite early enough to sow successional midseason and late Broccoli, the former including Snow's Winter White, Borecole, Chou de Burghley, Savoys, late Cauliflowers, and successional Brussels Sprouts. Raised much earlier the chances are that most of the plants will be practically spoilt in the seed beds before the ground is ready for their reception, whereas if the seed is sown now, thinly and well in the open, a capital lot of sturdy plants will be available just when wanted, and with ordinarily fair treatment the results should be most satisfactory. Good care ought to be taken of these late sowings, as should they fail later ones may be too backward. Rolling the seeds in a damp cloth and then in powdered red lead will make them distasteful to birds, netting over the seed beds being another good remedy, while if slugs or Turnip flea are troublesome soot and lime must be freely used when the seedlings are moist with dew by way of preventives.

THE BEE-KEEPER.

APIARIAN NOTES.

THE SEASON.

WE have experienced the most severe April in the north within the memory of man. Snow fell on ten days, and the temperature on the morning of the 29th was 27°. Between the 2nd and the 8th the weather was seasonable, and bees worked well upon the various flowers and catkins then in bloom, but few ventured out subsequently. It is surprising how far the brood is advanced with but six days' work, and with so few flowers to gather from.

PUNICS AGAIN.

On the 23rd half a dozen gentlemen visited me. Two of them came from the West Highlands for the purpose of seeing the much despised Punics. Unfortunately the day was too wintry for the bees to venture out; but the tin scoop feeders, which had been left underneath the bees all the winter, were drawn out. They were crushed full of bees and many seals from drone cells. This state of matters rather surprised the visitors. An examination of the Carniolans made in a similar manner showed them to be almost as far advanced, but in fine weather the Punics are the most active bees I have had experience with. One of the gentlemen present said that a neighbour of his procured a queen in the autumn of 1891, which was introduced to a mere handful of bees, and in due time the hive—a large one—was crowded with bees, and apparently as far advanced as his were now. These are crossed Punics, the progeny of pure queens, and appear to be a little in advance of pure breeding ones. I am anxious that the summer should be a favourable one for bees. When they begin honey gathering in quantity I will let your readers know the results of the different breeds. At present the Punics bid fair to maintain their good reputation, but a little patience will give us more substantial proof.

GRANULATED HONEY.

Occasionally one or more hives will be observed to throw out a considerable quantity of granulated honey, but how to prevent this has perhaps never entered the minds of many persons interested. After I had cleaned the *débris* from the solid floors of my hives some weeks ago I observed on several of them a considerable quantity of honey granules. I collected and dissolved them amongst syrup, and fed back to the bees. The ventilating floor not only permits us doing this easily, but enables us by its appearance to diagnose the state of the bees, without rushing to the questionable extreme of opening the hive and exposing to the inclemency of the weather, not unfrequently to the ruin of the hive.

SWARMING.

Swarming will be general in some places during May if the weather is at all genial. There will be a paucity of fruit blossom in some places this year, but the Planes (Sycamores) are showing many flower buds, which will compensate for the loss of earlier blossom. The bee-keeper will, however, do well to keep a careful

watch that the bees are gathering honey. Sometimes they make a great show as if honey was plentiful when it is not, and as it is the season when young bees and drones are hatching they soon consume all the honey that may be in the hive. To prevent the possibility of such a drawback feed liberally.

NUCLEI.

These to the greatest extent possible should be formed on the eighth day from the swarming of the first stocks. Should the favourite hive not be the first to swarm, exchange its combs with those to be bred from, being careful that all royal cells are destroyed, or else on their hatching they will either lead off a swarm or kill the queen regnant. When there is no queen, eggs, or brood in a hive for several days, it is a safe and expedient plan to sprinkle the bees of a nucleus with peameal. It will be remembered that some seven or eight years ago I mentioned this process, and the risk run of losing bees if the weather was cold at the time of queening, but otherwise the plan is a good one, and has been practised hereabout from time immemorial. The advantage of having young mated queens ready to introduce to stocks shortly after they have swarmed cannot be over-estimated.—A LANARKSHIRE BEE-KEEPER.

EXPERIENCE AND CONTROVERSY.

BEING interested in bees and a bee-keeper in a small way, I naturally turn to the columns of the Journal devoted to apianian notes as eagerly as I do to any other part of it in search of information or any useful hints that may be there recorded, and I must confess that I have gained considerable experience from the pens of "A Lanarkshire Bee-keeper," "A Hallamshire Bee-keeper," and Mr. J. M. Hooker, but I should like to see the trio more in unison.—R. M.

[So should we, and we have declined to insert much acrimonious matter that has been forced upon us during the past few months, and we do not covet a further supply.]

TRADE CATALOGUES RECEIVED.

Messrs. J. R. Pearson & Sons, Chilwell, Notts.—*Show and Zonal Pelargoniums, Fuchsias, Dahlias, Bedding Plants, &c.*

Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, London, S.E.—*Dahlias.*

Yokohama Gardeners' Association, Yokohama, Japan.—*Bulbs and Plants.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Seakale Seeding (S. M.).—When Seakale plants are allowed to mature seed they are more or less exhausted, and the growths of the following year will not be so robust as if seed had not been permitted to ripen; still a free growth of foliage is undoubtedly essential to the production of good crowns. We find that two extreme courses are not uncommonly adopted in the management of Seakale in summer. One is to allow seed to ripen on the plants, the other to cut down the flower stems, thus removing all the foliage. Our plan is to let the flowers form on the plants and then cut off the heads just before expansion, leaving all the leaves. These unexpanded flower heads are delicious when properly cooked. Those that are not required for table are thrown away, as we do not consider it wise to allow seed to ripen on the plants. If we want a little for sowing, one plant produces sufficient for our purpose.

The Electrical Exhibition (S. Josephs).—The first electrical Exhibition was held in the Crystal Palace in 1882. The Palace authorities state that the present Exhibition has already attracted over 850,000 visitors. Electric lighting for household use has passed beyond the experimental stage. "Transformers" have been invented, and dynamos, electro-motors, and other machines improved, so that it is now possible to distribute or transmit electricity, even more easily than gas, to long distances. These new machines may be seen in actual work in the machinery annexe, or other parts of the Palace.

Dandelion Wine (Mrs. Ellis).—There are various methods of making Dandelion wine, and one that has been recommended to us is as follows:—"To make 4 gallons, pour 4 gallons of boiling water over the heads of 1 gallon of Dandelion flowers, let it stand till cold, then strain off; add 3 lbs. of loaf sugar with half the peel of four Lemons and four Seville or sweet Oranges; boil half an hour the other half of the peel with the Oranges and Lemons sliced put in at new-milk heat with a little yeast, let it stand three or four days to ferment, then place it in the cask. In a week add half a pint of brandy and stop up the cask. In six months either bottle or draw from the wood, and if it is desired add a few more Dandelions."

Sulphuring Hot-water Pipes (H. E. M.).—It is not safe to apply sulphur to hot-water pipes before the Grapes are well advanced in ripening, as the fumes, which are given off at a temperature of 170°, are calculated to injuriously affect the skins of the Grapes, hardening them and thus preventing swelling, and causing them to colour prematurely. The effects of sulphur, however, differ with the varieties. Black Hamburgs are the least susceptible of damage, but Muscat of Alexandria, White Frontignan, and other white thin-skinned Grapes are soon affected, and assume a purplish hue, which mars their appearance, though not materially affecting the quality. We have applied sulphur to the hot-water pipes without injury resulting by using the mixture rather thin, the sulphur being brought to the consistency of thin cream with skim milk, painting the pipes when heated not above 170°. Sulphuring the hot-water pipes is a good means of destroying red spider and white fly, but it requires to be done with care and judgment.

Parsley for Market (A Subscriber).—In the Parsley growing districts extending from Biggleswade to St. Neots, and bordering on the Great Ouse, Parsley is grown with Onions, and a good distance apart, so that the plants are extremely sturdy, and produce abundance of grand leaves. These are carefully gathered by females brought up to the work of preparing vegetable crops in an attractive guise for market. There is no blemish in the samples, all being carefully assorted, made up in convenient bunches, usually a dozen full leaf sprays, and closely packed in half sieve (half bushel) baskets, covered with a few leaves, such as Brussels Sprouts or Savoys, and tied down. Washing is only had recourse to when the produce is dirty, and then the water is shaken out, for the Parsley is sold by the ton. The seed plants are the sturdiest and hardiest the locality produces, therefore the stock becomes very select and eminently suited to this mode of culture, while it is sufficiently curled for all practical purposes. It has no particular name other than Curled Parsley, the growers giving no guarantee with the seed.

Grubs Destroying Lilies (W. S.).—These are the caterpillars of one of the swift moths, apparently the species is the small swift (*Hepialus lupulinus*). They feed from autumn to spring upon the roots and crowns of a variety of plants, usually, however, attacking wild and not garden species. About June the moths appear, sitting on walls or palings during the day, when any seen should be removed, to diminish the brood of next year as far as possible. It is not easy to effect the destruction of the caterpillars. Some persons have found the free application of soot useful, others have watered the soil with a solution of carbolic softsoap, 1 oz. to a gallon of water, adding a wine-glassful of petroleum to three or four gallons. Hellebore tea has also been used with more or less satisfaction; but Mr. Hawkins, who grows Lilies of the Valley extensively for market, finds it essential to keep making fresh beds, in which he mixes lime and soot freely, for insuring a full supply of flowers, as when the grubs take possession of old beds they defeat his efforts to destroy them and restore the plan's.

Ammoniacal Solution of Copper Carbonate (F. W., Gloucester).—This preparation has been used with great success in America for the destruction of fungoid diseases of fruits, and so far as is known their safety for consumption has not been in the least impaired by the process. In an ordinary pail mix 5 ozs. of copper carbonate with enough water to make a thick paste. Dissolve this paste in 3 pints of strong aqua ammonia, then dilute to 45 gallons. If 3 pints of ammonia are not sufficient to dissolve all the paste add enough to bring about this result. Copper carbonate occurs in the market in the form of a fine greenish powder, but in view of the fact that copper carbonate is sometimes difficult to obtain the following directions for manufacturing it are given:—In a half-barrel, or some similar vessel, dissolve 3 lbs. of copper sulphate in 2 gallons of hot water. In another vessel dissolve 3½ lbs. of common washing soda in 1 gallon of hot water. When cool pour the second solution slowly into the first; then as soon as all action has ceased add enough water to bring the whole up to 8 or 10 gallons, and stir thoroughly. In twenty-four hours pour off the clear liquid, taking care not to disturb the sediment. Add fresh water and stir again. Again allow the solution to stand twenty-four hours, pour off the clear liquid as before; then remove the sediment, which is copper carbonate. The copper carbonate paste may be immediately dissolved in aqua ammonia,

using 2 gallons of the latter, or as much as may be necessary for the purpose. This concentrated fluid should be kept in well corked jugs, and when ready for use should be diluted at the rate of 1 pint to 12 gallons of water.

Petroleum an Insecticide (J. B. F.).—We do not recommend the systematic use of petroleum for Roses, Pelargoniums, and greenhouse plants generally; first, because such insects as aphides are easily destroyed by other means; and, secondly, unless the oil is washed off the foliage its constant use would stop up the pores and thus be injurious to the plants. If we had Camellias infested with scale or Gardenias with mealy bug we should not hesitate to syringe them with a mixture of petroleum and soapy water, because the oil would then be saponified by the alkali in the soap and could be washed off; but this is different from using the oil with pure water and applying it regularly for ordinary plants infested with ordinary insects. A fluid ounce of the oil to a gallon of water will kill most kinds of insects and injure few kinds of plants, if any; but it is of great importance that the mixing be effectual, the nature of the oil being to float on the surface of the water. We have seen petroleum used at twice the above strength with safety, and we have seen it do injury; the different effects probably resulting from the different qualities of water employed, or to imperfect mixing of the two fluids.

The Black Hamburg Grape (D. Phillips).—It is not easy to trace the origin of several familiar fruits. The Black Hamburg was imported from Hamburg by John Warner, a London merchant who lived at Rotherhithe, and cultivated a large garden, in which was a vineyard, in the early part of last century. It is from this circumstance that it takes its name of Hamburg and Warner's Hamburg. A fanciful story has been published about its having been brought direct from the Alhambra in Spain, and that the name now adopted is a corruption of that. Dr. Hogg doubts very much if it is a Spanish Grape. He is rather inclined to think that it has come from the East, as he can trace it by its synonyms through Hungary and the whole of Germany; and his friend, the late Comte Odart, remarks that it is met with from Strasburg to Vienna and Pesth, and that it may be called the national Grape of the Germans, the Belgians, and the Dutch. He might have included the English also. On looking at the synonyms one is struck with the prevalence of German and Hungarian names over the very few of French, Spanish, or Portuguese, and this tends to show that it is more known in the East than in the West; in fact, it is hardly known at all in France except under its English and German names of Black Hamburg and Frankenthal. It is very difficult to ascertain of what country it is a native.

Mole Cricket (Northumbrian).—Certainly "there is such a thing." It is known, in different parts of England, by the various names of Earth-crab, Jarr-worm, Churr-worm, and Eve-churr. It is the Gryllobatta vulgaris and Europea of some naturalists, and the Gryllus gryllobatta of others. It rarely appears upon the surface of the soil, but makes burrows, like the mole, and destroys all roots which interrupt it in forming these passages. When full-grown it is nearly 2 inches long, and four lines broad; colour, dark brown; antennæ, bristle-shaped, and in front of its black eyes; thorax, hairy; wings broad, large, and triangular when fully opened; abdomen, nine or ten-jointed, furnished at the end with two hairy awl-shaped filaments. The two fore feet are broad, like those of the mole, and similarly intended for digging. The female hollows out a place, about half a foot from the surface, in the month of June, and lays her eggs in a heap, from 200 to 300. They are shining yellowish-brown, and like grains of millet. The young, which are hatched in July or August, greatly resemble black ants, and feed, like the old ones, on the tender roots of grass, corn, and various culinary vegetables. They betray their presence under the earth by the withered decay of culinary vegetables in the garden. In October and November they bury themselves deeper in the earth as a protection from cold, and come again to the surface in the warmer days in March. Their presence is discovered by their throwing up the earth like moles. The surest of remedies is destroying the brood in June or July. Gardeners know, from experience, where the nest of the mole cricket is situated; they dig it out with their spades, and destroy hundreds in the egg state with little trouble.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (R. H.).—1, *Diosma uniflora*. 2, *Pittosporum tenuifolium*. 3, *Diplacus glutinosus*. 4, *Amygdalus pumila*. (R. H. S.).—The *Cypripedium* is *bellatulum*, the *Dendrobium* *draconis*. (J. Gilbert).—*Ornithogalum arabicum*. (J. B.).—The flower you send is of one of the *Statice*s, but the specimen is insufficient for determining the species. However, if you advise your friend to procure a plant of *Statice profusa* he will not be disappointed if he grows the plant well in his greenhouse. (Ignoramus).—*Viola canina alba*, the White Dog Violet. (M. G.).—1, *Thuiopsis dolabrata*. 4, *Pittosporum viridiflorum*. 5, *Kalmia latifolia*. Many Conifers cannot be named from small branchlets and without information respecting the character of the plants or trees.

COVENT GARDEN MARKET.—APRIL 4TH.

TRADE gone back, owing to cold weather. Prices generally falling.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, 1-sieve	1	0	5	0	Grapes, New, per lb. ..	3	6	to 4	0
Apples, Canada and Nova Scotia, per barrel ..	12	0	20	0	Lemons, case	15	0	2	0
Apples, Tasmanian, per case	7	0	12	0	Oranges, per 100 ..	4	0	9	0
					St. Michael Pines, each ..	3	0	6	0
					Strawberries, per lb. ..	1	0	4	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb. ..	0	9	to 1	0	Mustard and Cress, punnet	0	2	0	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches ..	2	0	3	0
Cauliflowers, dozen ..	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt. ..	2	0	3	0
Coleworts, dozen bunches	2	0	4	0	Salsify, bundle	1	0	1	6
Cucumbers, dozen ..	2	6	4	6	Scorzonera, bundle ..	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket ..	1	6	1	9
Herbs, bunch	0	3	0	0	Shallots, per lb. ..	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel ..	3	0	3	6
Lettuce, dozen	1	3	1	9	Tomatoes, per lb. ..	0	4	2	0
Mushrooms, punnet ..	1	6	to 2	0	Turnips, bunch	0	0	0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	2	0	to 4	0	Maidenhair Fern, dozen bunches	4	0	to 8	0
Bluebells, dozen bunches ..	0	9	1	0	Mignonette, 12 bunches ..	2	0	6	0
Bouvardias, bunch	0	6	1	0	Mimosa or Acacia (French) per bunch	1	6	2	0
Carnations, 12 blooms ..	1	0	3	0	Narciss (various), Scilly dozen bunches ..	2	0	4	0
Carnations, Malmaison, 12 blooms	2	0	6	0	Pansies, dozen bunches ..	1	0	2	0
Cineraria, dozen bunches ..	6	0	9	0	Pelargoniums, 12 bunches ..	6	0	9	0
Cowslip, dozen bunches ..	1	0	1	6	„ scarlet, 12 bunches ..	4	0	6	0
Cyclamen, dozen blooms ..	0	3	0	6	Polyanthus, dozen bunches	1	0	2	0
Daffodils (double), dozen bunches	2	0	4	0	Primroses, dozen bunches	0	6	0	9
Daffodils (single), doz. bnch.	1	6	6	0	Primula (double) 12 sprays	0	6	0	9
Eucharis, dozen	4	0	6	0	Roses (indoor), dozen ..	1	0	2	0
Euphorbia jacquiniæflora dozen sprays	2	0	3	0	„ Red, per doz. blooms ..	2	0	4	0
Freesia, dozen bunches ..	2	0	4	0	„ Tea, white, dozen ..	1	0	3	0
Gardenias, per dozen ..	2	0	4	0	„ Yellow, dozen ..	2	0	6	0
Hyacinths, dozen spikes ..	1	0	2	0	Spiræa, dozen bunches ..	4	0	6	0
„ Dutch, per box ..	1	6	4	0	Tuberose, 12 blooms ..	1	0	2	0
Lilium longiflorum 12 blooms	2	6	4	0	Tulips, dozen blooms ..	0	6	1	0
Lilium (various) dozen blooms	1	0	3	0	White Lilac (French) per bunch	4	0	5	0
Lily of the Valley, dozen sprays	0	6	0	10	Violet Parme, per bunch	2	6	3	6
Marguerites, 12 bunches ..	3	0	4	0	Violet, English, doz. bunch.	1	0	1	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (golden) dozen	6	0	to 12	0	Genista, per dozen	6	0	to 10	0
Arum Lilies, per dozen ..	6	0	9	0	Lilac, each	2	0	3	6
Azalea, per plant	2	0	3	0	Lily of the Valley, per pot	1	0	1	6
Cineraria, per dozen ..	6	0	9	0	Lycopodiums, per dozen ..	3	0	4	0
Onopressus, large plants, each	3	0	5	0	Marguerite Daisy, dozen ..	6	0	12	0
Dracaena terminalis, dozen	24	0	42	0	Mignonette, per dozen ..	6	0	12	0
„ viridis, dozen ..	12	0	24	0	Musk, per dozen	3	0	6	0
Erica various, per dozen ..	12	0	24	0	Myrtles, dozen	6	0	9	0
„ Willmoreana, dozen ..	12	0	18	0	Palms, in var. each	1	0	15	0
Euonymus, var., dozen ..	6	0	18	0	„ (specimens)	21	0	63	0
Evergreenus, in var., dozen	6	0	24	0	Pelargoniums, scarlet, doz.	4	0	6	0
Ferns, in variety, dozen ..	4	0	18	0	„ per dozen	9	0	18	0
„ (small) per hundred ..	8	0	12	0	Rhodanthes, per dozen ..	6	0	8	0
Ficus elastica, each ..	1	6	5	0	Saxifraga pyramidalis ..	1	6	2	0
Foliage plants, var., each ..	2	0	10	0	Spiræa, per dozen	8	0	12	0

Bedding Plants in variety in pots and in boxes.



DAIRY COWS.

AMONG much that is interesting in the new part of the Journal of the Royal Agricultural Society of England, a brief paper on the management of dairy cows by Mr. John B. Spearing contains some practical hints of considerable value. The most important is that on milk fever, about which there exists such diversity of opinion that an efficient remedy is a boon which all cowmen will find useful. Here it is. Mr. Spearing says he used to lose a cow or two most years from milk fever after calving—generally the best ones—until he tried the following plan, since which time his losses from this cause ceased altogether. Three weeks before the time for calving the cow is turned into a loose-box and given nothing but dry hay (of only medium quality) and water, and twice during

the time she is drenched with three-quarters of a pound of Glauber salts and half a pound of flowers of sulphur. Especial attention is paid to the state of the udder; as the milk begins to flow the udder is eased occasionally by some milk being drawn from it, and if it becomes hard in any part it is frequently fomented with warm water and some liniment rubbed well in each time.

There must be steady persistence with the fomentation till the udder becomes perfectly soft. This, in bad cases, is not a matter of hours but of days, the most stubborn cases invariably yielding to the treatment sooner or later. "I have," says Mr. Spearing, "sometimes made a man devote two whole days to this in obstinate cases, with most satisfactory results; in fact, I think I may go so far as to say that there is no excuse for losing a part of a cow's udder if the formation is right—and where it is not, the cow ought not to have been selected for breeding purposes." It is also noteworthy that in his fifty years' experience of dairy cows many a cow has lost one or two quarters from the cowman not having time to devote to it. Place, as he so sensibly does, the cost of an extra man to help the cowman for a day or two in such emergencies against the value of a good cow, and the wisdom of his advice is apparent.

He considered that 1 ton of hay would winter a dairy cow or full grown beast from November 1st to May 1st, and that one "yearling" from eighteen to twenty-two months old and one calf from nine to fifteen months old, are together equal to one cow or full grown beast. He arrived at this conclusion from having adopted the following allowance for two consecutive years on a small farm. He had 15 cwt. of hay trussed each week and weighed.

	Per half year. Tons.	Per week. Cwt.
Ten cows at $1\frac{1}{2}$ truss per week for twenty-six weeks (allowing for waste)	10	$7\frac{1}{2}$
Ten yearlings, from eighteen to twenty-two months old, at 56 lbs. per week each for twenty-six weeks	$6\frac{1}{2}$	5
Ten calves, from nine to fifteen months old, at 28 lbs. per week each for twenty-six weeks	$3\frac{1}{4}$	$2\frac{1}{2}$
	<u>19$\frac{1}{4}$</u>	<u>15</u>

The cowman was permitted to supplement this by adding as much cut Oat or Barley straw as he thought necessary. The cows weighed between 700 lbs. and 800 lbs. each. He never allowed Wheat straw to be used for feeding, considering it could be turned to better account, and regarding it as not very digestible food. A very small quantity of Cabbage till February and Mangolds after that date were allowed.

He regards midsummer as a critical time, when the cows require especial attention, because if having calved in spring they are allowed by mismanagement to fall off in yield of milk "after the turn of days" it cannot be got back again. The cows are then made to lie out at night, and stand in cool, well-ventilated houses during the day, to avoid the worrying from flies, which so seriously affects the quantity of cream and the quality of the butter. At the morning milking they each have a feed of 1 gallon of bran, 1 lb. of cotton cake, and 1 lb. of linseed cake. "After the milking they should be left to rest themselves all day, kept very quiet, and supplied at intervals as they require it with Lucerne, Sainfoin, or other green food, keeping before them a constant supply of clean water at a temperature of not less than 64° F." At the evening milking they have a similar allowance of dry food, and are then turned out for the night to grass. This treatment is continued till about the middle of September, when it is reversed, the dry food being continued and green food given in yard or cow-house at night.

In addition to the comfort of the animals under this treatment

there is the important fact of butter of firm consistency all the summer and higher value to be weighed. In autumn there is a sensible addition to the dry food of one quart of maize meal and two quarts of oats, together with some chaff made from hay silage and oat straw. As the grass becomes scarce a little Cabbage is gradually introduced. In winter warm water is added to the drinking water, as water at 80° to 90° is found to assimilate the food and materially assist digestion in winter time. "If," says Mr. Spearing, "the cow has to drink water at a lower temperature than 64°, or to spend much of her time in an atmosphere of low temperature, she is being used as a machine for warming herself and the water, whereas she can be more profitably employed in producing milk. It does not pay to use food and living animals as machines for heating water in these days of sharp competition."

WORK ON THE HOME FARM.

Sharp frost night after night has checked anything like free growth, yet the dry weather has prevented much harm being done to fruit blossom. Nothing could be more favourable for spring work on the land; spring corn has been rolled, and the first crop of Swedes sown on ridges in the same way as the Mangold. This involved some extra work, but it was worth while, as we had enough farmyard manure for the furrows, and the land was in excellent condition for the work. Recent experiments have so clearly shown the superiority of chemical manures for root crops that the wisdom of using farmyard manure at all has been questioned. But the fact of its special value for promoting brisk growth immediately after seed germination should not be forgotten. Placed as it is in the furrows immediately beneath the soil in which the Mangold or Swede seed is sown, the first roots of the seedlings lay bold of the moist manure, the plant grows so freely that it is soon safe from the attacks of insects, it sustains no harm from drought, and the roots soon spread into the soil that is rich in the fertility imparted by the use of chemical manures with the muck. Its use is, therefore, advantageous rather than indispensable.

Successional sowings of Swedes and White Turnips will be made on the flat with or without chemical manure as the case may be. When Turnips follow sheepfolds no chemical manure is required, the soil contains ample stores of plant food; but when a crop has been taken from the land to be consumed elsewhere, some manure must be used if we would have a full crop again. Take it as a general rule that one part of nitrogenous to two of mineral manure is a safe mixture for any crop; a dash of potash may be required, but it is not always necessary, because the soil takes up potash and retains it for a long time. The manure-room should always contain sufficient nitrate of soda and superphosphate for all probable requirements. They should not be mixed till required for use, as the acid in the superphosphate acts upon the nitrate, causing it to dissolve if left long before use. If the young plant of Barley has a yellow hue it is an indication of a want of potash, and a surface-dressing of a hundredweight per acre of muriate of potash should be given at once. This salt dissolves quickly, and its beneficial effect is soon visible in the healthy green hue which proclaims that all is well. Special mention is made of this, because a yellow Barley plant is commonly attributed to the presence of wireworms in the soil.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
1892.											
April.											
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	24	30.366	52.8	44.2	N.	49.8	63.7	47.2	108.9	40.3	0.060
Monday ..	25	29.882	43.3	42.2	W.	50.7	56.6	42.0	102.2	38.3	0.042
Tuesday ..	26	29.889	47.6	42.4	N.W.	48.7	57.0	36.2	109.0	30.1	—
Wednesday ..	27	29.830	47.1	42.0	S.	48.1	58.2	32.7	101.9	26.0	0.274
Thursday ..	28	29.580	38.6	37.9	N.W.	47.1	47.4	37.9	89.2	33.2	0.014
Friday ..	29	29.959	43.0	37.3	N.E.	45.2	51.6	33.6	103.7	27.4	—
Saturday ..	30	30.204	48.1	41.8	N.W.	45.0	59.8	30.1	104.0	22.9	—
		29.956	45.8	41.1		47.8	56.3	37.1	102.7	31.2	0.390

REMARKS.

24th.—Fine and sunny throughout, a little cloud in the evening.
25th.—Overcast and showery morning, bright sunshine in afternoon.
26th.—Bright and sunny almost throughout, but one or two slight sprinkles of rain in the morning.
27th.—Hazy early, bright sunshine most of the morning and occasionally in afternoon, wet from 4 P.M. to 8 P.M. and very heavy rain with hail at 6.30 P.M., bright night.
28th.—Cloudy and drizzly early, occasional gleams of sun, but a heavy shower about 3.30 P.M. and occasional drizzle later, clear night.
29th.—Sunny almost throughout.
30th.—Almost cloudless from sunrise.

Rather cooler than the previous week, but the difference from the average by no means important.—G. J. SYMONS.



AMONGST the different phases of gardening in the open air what we may term woodland gardening is the most charming, for in that we have a combination of the picturesque and the beautiful. Many no doubt at some time or other during the spring months, when everything is starting into life, have observed during their rural wanderings some charming picture in a copse, glade, or even on a sunny hedgerow bank, and have been struck with the beauty of the common Primrose, Wood Hyacinths, Wood Anemones, and later on by the Foxglove, wild Clematis, Honeysuckle, and wild Roses. No doubt they have wished that the picture could be transferred to their own gardens. Often again they may have noted a rivulet, pond, or bog where masses of the Bog Orchis, Bog Bean, Flowering Rush, Water Forget-me-not, Water Violets, Arrow Heads, Water Lilies, *Caltha palustris*, and other pretty water and bog plants were growing in Nature's profusion, and I am certain no costly flower garden has ever been more admired.

Pictures like these cannot be had in town gardens, unless there should be facilities out of the common, but there are many rural districts where they could be produced or improved upon by the naturalisation of the many hardy bulbs and plants, including climbers and trailers, of which we have now such a variety adapted for the purpose. During the past six years I have been trying to produce such effects as those indicated, and with the addition of the many spring flowering bulbs and other hardy plants we have improved the scenes around us. What were once uninteresting glades and woodlands now form a large wild garden, with its different attractive pictures, and as the season changes it proves a source of pleasure to all concerned. As each year comes round the various bulbs and plants increase in size, and so form bolder groups. The thousands of Snowdrops, Daffodils, Winter Aconites, Snake's Head Lilies, Crocuses, both vernal and autumn, are a sight to behold. Nowhere do Daffodils have a better effect than when growing out from grass; and on the margin of shrubs, rough woodland walks, or even by rivulets, the flowers appear to come larger and fresher.

The bulbs when they are first planted must not be put out symmetrically, but in irregular groups, as if they had established themselves naturally, and beyond the first planting no other trouble or care is needed. The foliage must be allowed to decay naturally, and then the bulbs will increase and the flowers appear in greater profusion every season. There are several varieties of Daffodils which may now be purchased in quantity at a cheap rate, such as the common double Daffodil (*Telamonius plenus*), Peerless Narcissus (*Incomparabilis*), and Stella, and there are also several others which bulb merchants who make a speciality of Daffodils sell at a cheap rate for the purpose of naturalisation. The removal of the foliage when the plants are growing in the grass before it has decayed is no doubt the reason why, in several instances, the planting of hardy bulbs has caused disappointment. The results have not come up to expectations through the bulbs being planted where the grass has to be cut. True, the grass has to be cut at some time or other, if only to prevent the plants being overgrown by coarse herbage, but more often for affording pleasure in viewing or walking amongst the flowers. We generally cut the grass about three times during the season, but on no account do we cut from over the bulbs until the foliage has all decayed.

The blue Wood Anemone (*Anemone apennina*) is a beautiful flower for naturalising amongst grass, especially if planted on sunny slopes or in open glades. *A. fulgens* (the scarlet Windflower) I have successfully naturalised amongst the grass, and also the Grape Hyacinth (*Muscari*), *Scilla sibirica* (blue Squill), American Cowslips, Dog's Tooth Violets, Snake's Head Lily (*Fritillaria meleagris*), Solomon's Seal, *Hyacinthus candicans*, Crocuses, and Snowdrops by thousands. We also have the Meadow Saffron (*Colchicum autumnale*) and its double form, and very beautiful they look appearing amongst the grass in autumn—I had nearly said by themselves, but we have some grand clumps of that splendid autumn Anemone, *A. japonica alba*, and the pink form, also quantities of the Torch Lily (*Tritoma uvaria*). Rambling over old stumps and on hedges the purple Clematis becomes all aglow, and although we have plants with thousands of flowers in more conspicuous positions, yet nowhere is the effect more charming than on the hedges. A very attractive feature in autumn is the bright foliage of the Virginian Creepers, both the old form and Veitch's. We have them climbing up the trunks of trees, particularly Larch, and more should be made of them for this purpose. In time we hope to have them festooning the branches in graceful profusion.

Although we are exceptionally favoured with positions for woodland gardening on an extensive scale, it can be carried out just the same in a more curtailed space, if there is only the enthusiasm to carry on the work. Last autumn we planted and otherwise beautified an old limestone quarry. The steep rocky slopes, like miniature precipices, presented facilities for planting rambling Roses, Honeysuckle, Clematis, Cotoneasters, and, amongst the boulders, masses of Yuccas. For such positions masses must be planted so as to give an imposing effect, whilst here and there the yellow Laburnum, scarlet Thorn, Mountain Ash, and such-like flowering trees will add to the variety of the scene. In the shady nooks quantities of the Male Fern (*Lastrea Filix-mas*) dug out of the hedgerows, are now becoming established, and afford cool retreats to show off the natural effect of this, one of our hardiest British Ferns. The Rose of Sharon is also used with advantage, its bright yellow flowers lighting up some steep banks in the autumn. *Crataegus Lelandi*, the best form of the *Pyracantha*, is particularly effective when covered with its bright berries in autumn, but as in our case birds are numerous, the berries quickly vanish, whereas if this was not the case they would remain on during the best part of the winter. I am thinking of trying *Tropæolum speciosum*, and only hope it will succeed, for no more gorgeous effect could be produced than masses of this festooning the shrubs. *Leycesteria formosa* is a fine shrub, either for shrubbery or wild gardening. In autumn it is a mass of berries hanging in long bunches like Grapes.

Amongst plants growing naturally in the grass in a damp spot I may note the following. *Spiræa aruncus* produces a grand effect; *Bocconia cordata* is also stately and effective. In autumn the Michaelmas Daisies unfold their blossoms, also the perennial Sunflowers. I do not know any hardy plants in bloom in their season which so brighten up the surroundings as these, and being vigorous growers there is no fear of their not succeeding; they grow and increase at a marvellous rate. Another noble plant which we have is the Pampas Grass, one large group of forty or fifty plants being generally a flowing mass, but last season it was not so good as usual, the hard winter having left its mark. In a damp spot open to the sun the different varieties of Iris have a very bold effect, the colourings showing up remarkably well. The varieties best adapted for the purpose are the Pogon and rhizomatous section, commonly known as the Flag Iris.

Of the various hardy herbaceous plants adapted for the purpose of naturalisation there is an almost endless variety, and I could write page after page in praise of those which I know will succeed well. The vernal Gentian naturalised amongst grass in an open and sunny, albeit moist and well drained position, forms a

picture never fading from the memory. *G. acaulis* would, no doubt, succeed as well as our British species. Primroses of various hues, along with the normal colour, are well known favourites, and these awaken recollections of the earlier phases of natural or wild gardening. Coming nearer London the masses of yellow Primroses appearing in the Sussex hedgerows, and in the Hazel and Birch copses as seen from the windows of the passing railway trains, are truly charming. I have also in my mind's eye the mossy dells in an old Herefordshire garden, in which from time immemorial masses of the various coloured Primroses have appeared each season; and except for a winding walk amongst them the foot can hardly be placed down without treading upon flowers. I have also naturalised thousands of these coloured and yellow Primroses from plants raised from seed, and seedlings from the original plants are now springing up in profusion.

I have incidentally referred to the naturalisation of Snowdrops and Crocuses, and with these there is far less trouble than some people think. Taking up the turf, forking over the soil, and manuring are recommended; but anyone who has had much of this work to do knows that this is unnecessary, if not impracticable. All that is required is to have an iron dibber with which to form the holes about 3 inches in depth, the bulbs being pressed in and the holes filled up with any refuse soil. To insure their succeeding well the tops, as I have previously hinted, must be left to decay before they are removed, and those persons who have no semi-wild positions in which to plant them, or have such an eye for extreme neatness that the tops must be cut off as soon as the flowering is over, had better abandon the idea of naturalising spring flowering bulbs of any kind. Anyone living near London who pays a visit to the Royal Gardens at Kew, or even to some of the London parks, would be able to see practical ideas in evidence as to how to proceed with these spring bulbs.

Old stumps of trees may be transformed into very beautiful objects by planting rambling Roses, Clematis, and Honeysuckle for clothing them attractively. I had the old Rose *Felicité Perpetué* literally covered with bloom last season in such a position, and, in passing, I may say that this is a grand Rose for planting on rocky slopes. What was once an eyesore and a nursery for colonies of coarse-growing weeds is now clothed with verdure by the Rose in question. Flowering shrubs and trees adapted for the purpose are almost endless, and in addition to the Flowering Thorns and Laburnums, Mountain Ash, others will suggest themselves, such as the Flowering Almond, Sweet Briar, *Rosa rugosa*, *Prunus Pissardi*, Double-flowering Cherry, *Pyrus Malus*, *Berberis Darwini*, *B. stenophylla*, *Clethra arborea*, *Hypericums*, Lilacs, Tree Pæonies, Mock Orange, Weigelas, and the Guelder Rose. One and all are well adapted for planting in semi-wild or woodland sites.
—A. YOUNG.

GREAT FLOWER SHOW IN THE INNER TEMPLE GARDENS.

ON Wednesday and Thursday, May 25th and 26th, by kind permission of the Treasurer and Masters of the Bench, the Royal Horticultural Society will hold its fifth great annual Flower Show in the gardens of the Inner Temple, London, situate close to the Temple, Blackfriars, and Ludgate Hill Railway Stations, and overlooking the Thames Embankment. Last year, when over 10,000 people visited the Show, the Exhibition was in every respect unique, and this year, when the interest in plants and flowers seems to have taken root universally, it may fairly be assumed that the forthcoming display in the Inner Temple Gardens on Wednesday and Thursday, May 25th and 26th, will be at least as successful and interesting as those which have preceded it—if the weather be fine.

To enable gardeners (that is, *bona-fide* employés in a private garden, nursery, market garden, or seed establishment) who are not already Fellows or Associates of the Society to visit the Show, the Council have decided to allow them to obtain 2s. 6d. tickets admitting at 10 A.M. on Thursday, May 26th, for 1s., provided that application for the same be made to the Secretary, 117, Victoria Street, S.W., prior to the opening of the Show. Postal orders and stamped and directed envelopes to be sent in every case.

Arrangements have been made with Messrs. J. Lyons & Co. of Olympia, to supply all kinds of refreshments at the Exhibition, and musical visitors will be glad to hear that by permission of the Right Hon. the Earl of Errol, the band of Her Majesty's Royal Horse Guards (Blues) will be in attendance each day, under the able conductorship of Mr. Chas. Godfrey, R.A.Mus.

A catalogue of the Show will also be issued by the Society, and a copy will be presented to every person visiting the gardens. It will contain a short historic account of the Society since its establishment in 1804, by the Rev. W. Wilks, M.A.; the names and addresses of all exhibitors, with plants, &c., shown by them, a programme of the music to be performed each day by the band, and various other particulars, chiefly relating to the Society's work in regard to horticulture in general.

LILIUM HARRISI.

WELL GROWN plants of this beautiful white Lily cannot but find an admirer in anyone who may be fortunate enough to see them in flower now. Considering their comparatively easy culture, and that they come in at a time when the demand for white flowers for Easter decorations is so great, one might expect to see them grown on a more extensive scale than is usually the case in private establishments. Another important point in their favour, if proper attention is bestowed upon them, is their producing flowers twice the same year.

October is a good time for the potting process to be carried out. Place the bulbs singly in pots about 8 inches in diameter, or three in a 10-inch pot, about three parts full of soil, afterwards plunging them in ashes in a cold frame, where they may remain until they are required to start. Until that time there will be no necessity for watering providing the soil is in a suitable condition when first used. If the plants are wanted in flower about Easter they may be introduced to a vinery or other fruit house, which is started at the beginning of the year, placing them in a position not too far from the glass, so as to secure sturdy growth and prevent them being drawn. By the time the house becomes too shady by the growth of the Vines there will no doubt be some other suitable space available in houses started later on, to which they may be transferred. As the soil becomes full of roots the soundness of the practice of only partially filling the pots at the commencement will be recognised, as a good top-dressing of loam and decayed manure may be applied with the greatest advantage.

When the flower buds are discernible a little judgment must be exercised in order to ascertain as near as possible what stage of development they will attain by the required time, so that if they appear to be rather late they may be subjected to more heat by placing them in a stove or other structure of a higher temperature, or if the reverse they may be retarded slightly. I do not advocate moving them to a much lower temperature than that they have grown in until the flowers are partially expanded, at which time, if they are moved to an airy greenhouse, the period of flowering will be considerably extended. The pollen is apt to smear the inside of the flowers, the best remedy for this being to take it out as soon as the flowers are sufficiently open to admit the finger and thumb, although some prefer to leave it undisturbed.

After flowering the plants may be gradually dried off and placed in the open on their sides. When fresh growth commences set them up, and attend to them in respect to water, but let them remain outside until flower buds make their appearance, when they may be taken in as required to open. During the time they are growing occasional applications of liquid manure will help them wonderfully. I find they do well in a compost of three parts loam and one of dried cow manure and leaf soil, with a moderate sprinkling of coarse sand, to make the compost porous. Green fly is liable to infest them, but may easily be disposed of by fumigation, or a dusting of tobacco powder, as soon as it puts in an appearance.—J. CLARKE.



ORCHIDS AT GREENLANDS, HENLEY-ON-THAMES.

IN a cool house at Greenland I recently noticed an exceptionally dark form of that most useful of all Dendrobiums, *D. nobile*. Mr. Clayton informed me that pruning is not practised on this species, and indeed few can show good results from the use of the

knife even on this, the easiest grown of the genus. *Dendrobium Jamesianum* was carrying a quantity of flowers. *D. Brymerianum* was represented by one weak plant, and evidently not doing so well as the foregoing. In a previous note I recommended this species as a very desirable one and worthy of a place in any collection of *Dendrobiums*. During the growing season it should be afforded plenty of heat and very light shade. A fine-mesh net would serve the purpose better than anything else. It is an evergreen, and should therefore not be kept so dry and cool as the bulk of the deciduous species and varieties during the resting period. I have known it to succeed well under the treatment accorded to *D. MacCarthiae*. The fine papillose fringe of the bent lip and

other good things helped to make gay and interesting this very healthy and well cared for collection.—W. R. W., *Gt. Marlow*.

CATTLEYA VICTORIA REGINA.

THE beautiful and imposing genus *Cattleya*, already one of the richest in fine forms of all the Orchid family, continues to be strengthened by the addition of fresh species. The re-introduction of *C. labiata autumnalis* was an event of special interest and importance, restoring to us a valuable form too long lost sight of. This has been followed by *C. Rex* and *C. Alexandræ* from Messrs. Linden, though with regard to the latter species only qualified



FIG. 60.—CATTLEYA VICTORIA REGINA.

glossy yellow colouring of the whole flower showed well amongst the variety of other flowers in the Greenlands collection. Among the *Masdevallias* *M. Harryana* was the most conspicuous, the form and colouring being almost, if not quite, equal to the variety *regalis*. Several good *Odontoglossums* were in flower, *O. nebulosum*, *O. citrosum*, *O. pulchellum*, and a quantity of *O. Rossi majus* being finely flowered. An immense spike of *Calanthe Turneri* was at its best in a warm house.

Possibly the best plant in the whole collection is the exceptionally fine form of *Cattleya Trianae*, there being several plants not yet invested with a varietal name, though equal to *C. Trianae Hilli* in size and much resembling that superb variety in colour. *Cattleya amethystoglossa* was well flowered. The rosy purple tint of this species renders it a most difficult plant to arrange effectively with other colours unless white or some shades of yellow are plentiful. *Cypripedium villosum*, the curious *C. Domini*, and a number of

acceptance has been accorded by orchidists in this country, and more must be known of it before it will find a place in our leading collections. The latest recruit is the beautiful and distinct *C. Victoria Regina*, for which Messrs. Sander & Co. received a first-class certificate at a meeting of the Royal Horticultural Society on May 3rd, and of which a consignment will be sold by Messrs. Protheroe & Morris on their behalf on May 13th. This magnificent species promises to add a remarkable feature to all collections of *Cattleyas*. In form the flower is most distinct, and in colour it is exceptionally rich. The sepals and petals are of a beautiful rosy mauve hue, and the lip, which is flattened, rounded and fimbriated, is most richly coloured with magenta carmine. It narrows towards the tube, as is shown in the engraving, fig. 60. Messrs. Sander & Co. state that the effect of the flower is heightened while in a young state by a shading of bronze in the petals. It may be likened to forms of *Lælia elegans*, such as *L. e. benheim-*

ense and *L. e. Turneri*, but the flowers are of great size, measuring 6 inches across.

The introducers anticipate that it will prove to be an autumn bloomer and a very free grower. That it is a profusely flowering species could be gathered from the imported plants exhibited at the Drill Hall, which also served to indicate its habit. The pseudo-bulbs are a foot or more long, surmounted by very stout oval-shaped leaves in twos and threes, and the flowers number as many as eight to twelve on a spike, in some cases even more. All things considered, the sale of this superb species should prove to be of exceptional interest, and its addition to our already rich array of *Cattleyas* a matter for mutual congratulation.

LÆLIA LATONA.

This beautiful hybrid, for which Messrs. J. Veitch & Sons received a first-class certificate at a meeting of the Royal Horticultural Society on May 3rd, and which is represented by fig. 61 (page 353), marks another instance in which the orange hue of *Lælia cinnabarina* has been combined with the richer colouring of another *Lælia* or *Cattleya*. The effect is as distinct as the difference between white and yellow ground Carnations, and is in the highest degree pleasing. The parents of *L. Latona* are *L. purpurata* and *L. cinnabarina*. Although the flower is much smaller than the former, the sepals, petals, and the lip being narrower, there is a clear resemblance between the two, especially in the labellum. The petals are somewhat broader than the sepals, and the lip fimbriated. The colouring is a delightful combination of the hues of the parents. The sepals and petals are old gold, the latter being very faintly veined with crimson. The lip is a beautiful carmine crimson, and this colour also extends to the exterior of the tube, the front and edge of the lip being margined with yellow. The pseudo-bulbs are narrow and conical, the leaves linear oblong, 6 to 8 inches in length. It is a charming acquisition.

PECULIARITIES.

It is certainly curious that some people go to the expense of buying Orchids and devoting a house or two to them, but will not buy material in which to pot them. A well-known cultivator, after spending a week looking over a large estate where he was told there was plenty of peat, reported that there was nothing suitable for potting Orchids. There was plenty of peat, but it was nothing but wet sour bog. The plants were potted with the rhizomes of bracken. For a time all went on well, and the experiment—the result of difficulties—led to others being potted, until the whole were done. It was after all only a seeming success, for fungi infested every pot; the smell was so strong that it was readily perceived directly the door was opened. The plants were turned out, washed, and started again on blocks placed in pans and pots, with crocks, charcoal (home made), and sphagnum moss (fortunately there was a fair supply of this). The result of this treatment in many cases was not unsatisfactory. A small supply of peat was afterwards annually conceded. The lesson for us to learn is to be more careful than many are in the removal of Fern roots from amongst the material when it is pulled up for use.

One of the peculiarities attached to Orchids is the almost general opinion that any dried specimen can be restored to health and vigour. In other plants such specimens would be totally ignored. In Orchids they are readily bought, and the cultivator into whose hands they are consigned comes in for a fair share of abuse if he fails to succeed. Very recently I had the misfortune to see a few lots out of several consignments a good deal more dead than alive. Their condition was so critical that the gardener hesitated whether to pot them or convey them to the rubbish heap. To buy such plants is a waste of money, a waste of time and labour, to say nothing of the worry they entail. Before it had been decided what to do with the bright lot of plants consigned to his care the fair and gentle purchaser of them wrote to ask how they were growing. If these remarks should by chance meet her eye, perhaps she will take the advice of an old hand, and try one good healthy plant to start with, even if its first cost is as much as twenty half-dead pieces that the skill of no man can restore to health. The one will pay for looking after and give pleasure, while the others are a nuisance to all concerned.

One more word. More Orchids are ruined by too much water towards autumn and again in spring than from any other cause. It must not be forgotten that the plants have been enjoying a season of rest, through having been kept comparatively dry. The injury is done by not increasing the supply of water as the plants advance in growth, but subjecting them to a sudden change from dryness to a wet condition. The formation of roots should guide the cultivator in

the supply of water needed. When the roots are extending freely liberal supplies are beneficial, but before new roots are forming freely they are positively injurious.—R. M. B.

BORDER CARNATIONS.

[A paper read by MARTIN R. SMITH, Esq., at the last monthly conversazione of the Horticultural Club, May 3rd, 1892.]

WHEN, some years ago, I first commenced to take an active interest in the cultivation of the Carnation, I was sanguine that I should be able to produce from the open border blooms which should rival, if not surpass, those cultivated under glass. My anticipation was, of course, as you must all know, a mere piece of presumption, a seedling from enthusiasm crossed by ignorance or want of experience. I do not, however, now regret that my aim was somewhat loftier than I could hope to realise, as it taught me, at any rate, to be dissatisfied with anything but the best, and encouraged me to seek that best by all means in my power. I feel it as a compliment, altogether beyond my deserts, that I have been asked to-night to open the discussion upon this subject, and I feel that I cannot do better than give, in as simple words as I can, the result of my own experience.

The first and most important fact that I learnt, and one that has subsequently been confirmed by many disappointing experiences, is that all Carnations are not suitable for open air cultivation. This is one of the points upon which I hope to hear some remarks this evening; I state it as a conclusion to which my own experience has led me. Do not understand me to call in question the hardiness of the ordinary Carnation (of course I am not speaking of the *Malmaison* type). No doubt all Carnations will live, and all will bloom more or less without shelter of any sort. But one variety will give eight or ten good blooms in the open border where another will give but one or two, and those very inferior to what the same variety would produce when cultivated under glass. The first thing to be decided, therefore, is what varieties should be grown. It is impossible, or rather I should say it would be useless, to give names, for I have found Carnations singularly sensitive to the influences of soil and climate, and that varieties which will do well in one garden will by no means necessarily thrive in another, even though it be but a few miles distant. For instance, I have several neighbours at Hayes, one in particular some two and a half miles from me, in whose garden the old *Clove* Carnation flourishes magnificently, whereas, with me at Hayes, they all, year after year, perish miserably from spot, until I am almost forced to confess that I cannot grow them.

The first essential, to my mind in a border Carnation is that it should not be what we call familiarly "a buster." All Carnations will at times, and in certain seasons, show a tendency to this weakness, as we know only too well; but certain varieties with short, round, flat-headed buds always must burst their calyx, the very form of the flower bud necessitates it, and such varieties should never be planted in the open border, for the weather, the bees, and the earwigs will spoil every bud before it is well open. There are certain characteristics required for all border varieties. They must be of vigorous habit and free flowering, preferably of dwarf rather than tall growth, and they should be inclined to make hard and wiry rather than "sappy" grass. There is no doubt that this matter of the nature and character of the growth is of much importance, and that there are many varieties apparently of extremely vigorous type which will not stand great vicissitudes of weather in the winter. About four years ago I raised two or three varieties of apparently very vigorous habit, with which I was much pleased. They had the foliage of the *Clove* if not almost of the *Malmaison*—that is, succulent and sappy. They did famously the first year or two, but the winter before last killed every one of them. I tried to recover them from friends to whom I had given them; but they were all gone—finished off by the same winter.

Again, border Carnations should be of erect habit—that is, should hold their flowers up to look you in the face. Half the effect of flowers in the open border is lost when they have a pendulous habit, and present to the spectator only the back of the bloom. It is also tedious to have to stoop and turn up every flower that you may wish to examine. As I have said, my experience is that Carnations are very sensitive to peculiarities of soil and climate, and for this reason I have always counselled friends who are starting Carnations in the open to commence with varieties which thrive in their own vicinity, and to extend their stock gradually by experiment.

One peculiarity Carnations have, and I fancy it is the same with all flowers, and that is the commoner the type the more freely and vigorously do they flourish in the open border. There is herein a temptation to gardeners to be satisfied with such flowers in the open, and to grow their finer varieties exclusively under

glass. This is the very thing I have always set my face against, for I believe absolutely in the unlimited capabilities of the Carnation to adapt itself with time and cultivation to all circumstances. I think, indeed, that up to a few years ago we had got altogether into a wrong groove, and by growing Carnations almost exclusively under glass were running a serious risk of developing for ourselves a delicate class of flowers. Fortunately, however, good gardeners found out their mistake in time, and returned, with sound reason, to the hardier treatment which was given to these flowers by our forefathers. Everyone now repudiates the idea that the ordinary Carnation requires coddling, but harm has been done, and we do possess beautiful and highly valued varieties now which can only show their best when protected from the weather. Perhaps the most effective display of these flowers in the open border is made by masses of self Carnations, and I should be inclined to say that at present, as a class, they are freer, more vigorous, and better adapted to the open border than the majority of the flakes, fancies, and bizarres now in cultivation. I should like to hear the opinion of others upon this point.

With regard to the border, my experience is that nothing is so suitable to the growth of the Carnation as fresh virgin loam, not too heavy, and certainly not too light. Nothing in the shape of manures, or artfully and ingeniously devised composts, will produce the same rich vigorous growth and the same wealth of bloom as fresh loam. The latter and a liberal addition of thoroughly well decayed manure, say from old hotbeds, is all that is required. You may add road scrapings, bones, charcoal, lime rubbish, sand, what you please almost, and they may do good—at any rate, they can do no harm, if the foundation of your border is sweet fresh top spit. My own system is to remake my Carnation border every September as soon as the layers are ready for removal. When we are satisfied that this is the case we put on the whole strength of our staff and set to work. By the side of the border are cartloads of fresh soil and well decayed manure, some crushed bones, and lime rubbish. The layers are lifted for some 20 feet, the portion of the border from which they were taken is well trenched, and the surface raised with the fresh loam, manure, and other materials. The whole is then trodden fairly firm, and the layers are at once planted, the number and position of each variety having been previously decided on, the same process being continued until the work is completed. I adopt this system as I am compelled by want of space to use the same border year after year for my plants, and I find that if I am stingy with my fresh loam I get a correspondingly inferior result. Had I room I should prefer to occupy fresh ground every year for my flowers, and thus be able to prepare the ground at my leisure.

I have frequently advocated this liberal use of fresh loam, and am constantly assured that though it may be good it is not necessary, that the expense is too great, or that the material cannot be obtained, and am confronted with the fact that many growers, notably my friend Mr. Rowan, produce their beautiful blooms without the annual renewing and remaking of the borders which I have recommended. I can only reply that skill and experience will do wonders, but that fresh loam is to the majority of mankind more easily obtainable than either one or the other, and will produce the same result. Fresh loam, like charity, covers a multitude of sins—sins of omission and commission, sins of ignorance and of carelessness. I look upon the matter of pure sweet fresh soil as the great secret of successful growing of the border Carnation. You all, doubtless, knew it perfectly well, as you all knew the other great secret, which is early autumn planting; but thousands of people who grow Carnations do not know these simple facts, and hundreds of gardeners who ought to know them do not act upon them. This early autumn planting is, perhaps, more important than anything. Plants established in their flowering quarters before the cold season sets in will, as a rule, laugh at any weather. Losses, no doubt, there must always be from maggot, wireworm, and other causes, and I find it necessary to keep a reserve of layers in 60-size pots, from which I fill the vacancies in the borders at the first moment after the middle of February when we are favoured with open weather. My experience is that the sooner this is done after the middle of February the better. I generally remove at the same time any plants that look sickly, for Carnations are like pigs, it is very little use to attempt to doctor them; when once they get ill you may as well kill them.

As I have acknowledged, the Carnation grown out of doors cannot compete in beauty of bloom with those grown under glass, and for this simple reason we cannot give to the plants in our borders the protection overhead afforded to those in pots. They are at the mercy of heavy rain storms, of bees, of earwigs, and of slugs. I am sure last year I had many hundreds of blooms decay by rain before the buds were half open. You may do something towards keeping down earwigs, and ought to be a match for the

slugs; but the bees, especially the bumble bees, are too much for anyone. Thrips, too, is a very serious trouble out of doors, and my plants suffer much from it. It cannot be treated by fumigation as in a house, and syringing with any composition you may like to mention I have found a very inefficient remedy. It must be allowed, then, that blooms from border Carnations cannot compete with those grown under glass, but only because it is impossible to protect them at the critical moment of the opening of the buds. Apart from this, I believe that they will produce blooms fully equal to those raised in a house.

Before concluding I should like to say a few words, and to ask for the experience of others about yellow ground varieties out of doors. I find at Hayes that they are distinctly, as a class, less vigorous and free than the ordinary Carnation. At times I get lovely blooms, but the plants are as a rule poorer and weaker than their neighbours in the same border. The best doer, so far, with me is certainly William Threlfall; but it is not a variety that I care much for, as the flowers with me are generally rather thin and poor. Our old friend, Pride of Penshurst, certainly gives me the best yellow blooms; Germania is a comparative failure; Benary's Madame Van Houtte promises to do well with me, and Agnes Chambers last year proved both vigorous and free. I confess, however, that either I do not understand the yellow grounds, or that my soil and climate do not suit them. Do what I will I cannot get them to thrive as a class. Here and there I get a good and vigorous plant, but as a rule they can be unfailingly picked out from their neighbours by their less satisfactory appearance. However, I am encouraged by a fancy that the varieties I have had for some time are improving, and my hope and expectation is that they are acclimatising themselves. My garden lies rather high, and the only soil that I can get within reasonable distance is rather too light and hot.

It is a great pleasure to me to see the daily increasing interest which is attaching to the cultivation of the Carnation. I have in my own vicinity at Hayes ample evidence of the fact, for many of my neighbours appear almost as keen about them as I am myself. We have already scores of lovely varieties well suited for border cultivation, and I look with confidence to a considerable increase both in the number and beauty of such varieties during the next few years. To this end I exhort all my friends and neighbours to raise seedlings. Apart from the fact that there is nothing so lovely in this world in the way of flowers (to my eyes at least) as a bed of well grown seedling Carnations, with its wealth of bloom of every shade and variety of colour; it is also certain that a patient and intelligent perseverance in this most delightful pursuit will be rewarded sooner or later by the production of varieties greatly in advance of those we now possess, more vigorous, freer flowering, still more exquisite in form and colour, and thoroughly well able to withstand all the rigours of our most detestable climate.

THE GENUS NARCISSUS NEAR BAYONNE.

THE town of Bayonne may be considered in a way to be the centre of the metropolis of the Daffodil tribe, situated as it is between the western end of the Pyrenees and the Cantabrian range of the Spanish peninsula, which is rich in members of the same genus. For several years it has been the headquarters of a trade by which collectors are rapidly exterminating their native bulbs to supply the English market. It would be interesting to know for certain how many and what kinds of Narcissus are indigenous to the neighbourhood, and which of them are only naturalised, but this is a question by no means easy to determine. The same means which brought so many varieties of Daffodil in remote times to England and Ireland may have helped to multiply the number of indigenous kinds in the South of France also, and we can only judge by their general distribution whether they are true children of the soil or foreigners. An intimate friend of mine, who for upwards of forty years has lived at Bayonne, and knows the neighbourhood well, has from time to time sent me flowers and bulbs said to be collected in the country. He has always done his best to get information from the collectors about the habitat of each, and in many cases has verified this by a visit to the spot in person, but often the information given has proved entirely untrue, and some mysteries remain unsolved. During my recent stay at Biarritz I visited the flower markets and flower shops, both there and at Bayonne, nearly every day. Flowers of various kinds of Narcissus were brought in from early in January to the end of March, and I lost no opportunity of finding out all I could about them. Since the growth of the English colony at Biarritz the demand for these flowers has greatly increased, and many of the peasants grow them in the cultivated plots—gardens they can hardly be called—adjoining their cottages, where flowers

are planted for profit more than for ornament, and the flower sellers are far more likely to assert that what they sell is the produce of their own grounds than that it was gathered wild, as they think they may so ask a higher price.

The first *Narcissus* on the list is the Hoop Petticoat, and the pale yellow variety of it called *N. bulbocodium* var. *citrinum* is the only form of the species ever found in France. Indeed no other is found in Europe outside the limits of the Spanish peninsula. Its range in France is pretty well marked, being bounded by the course of the Garonne from its source close to Spain to its mouth at Bordeaux. The Hoop Petticoat occurs at intervals throughout this district, reaching at least as far east as Bagnères de Bigorre, and having been found by Mr. George Maw not far from Arcachon, a few miles south of Bordeaux. Near Bayonne I found it only on the west side of the Nive, but about Biarritz it abounds. Some dealers have divided the variety into greater and lesser, but there is no such natural division, large and small flowers being found intermixed, though the average size is larger where the ground is favourable for their growth. They delight in a steep hillside, where the ground has some tendency to be boggy, but they do not grow in the wettest spots, preferring the sounder ground amongst the scrub of Heather and Gorse, which protects their roots. I found them plentifully in flower in one sheltered spot before the end of January, and they were not over when I came away at the end of March. The flowers are gathered by thousands for the market, and the bulbs are dug up to send to England; one nurseryman at Biarritz told me he had sent 40,000 here last summer. I noticed in so many instances that I am sure it cannot be accidental, that they prefer the northern and north-western slopes of the hills. I hardly ever saw one on the eastern or southern sides, however favourable for them the soil might appear to be. In England we fancy that all this class like roasting in summer, but in their native haunts they seem to avoid it.

Next comes the very large and variable species *N. pseudo-Narcissus*, of which I will to-day speak of only one variety, the common large double Daffodil of English gardens, where it is known as var. *Telamoneus plenus*. This is to be seen everywhere, in the cultivated plots and in the neighbourhood of detached farms or old châteaux, and I am told that it is the only variety of Daffodil which has been long thus grown in France. In fact it seems to be wild in that part of France just on the same terms and in the same way as it is wild in England. It probably has no claim to be indigenous in either country. There is no large single flowered kind common in any part of the neighbourhood of Bayonne to which its origin can be assigned. The most plausible theory about this large double Daffodil is that it came from northern Italy, in parts of which, especially in the meadows of the Tuscan rivers, it is found growing wild in company with the common large single Daffodil of the country. It has so robust a constitution that wherever accident or the hand of man once brings it, there it becomes established. I have seen it in more than one spot in the meadows and islands of the Adour, above Bayonne; but it does not seem anywhere to ascend into the mountains. Its size and bright colour make it a favourite with the French, and large bunches appear in the markets and the streets from the end of January onwards. The local botanical catalogues call it *N. major* var. *obesus*. The origin of this name appears to be Godron's "French Flora," 1848. What I have to say about other varieties of *pseudo-Narcissus* I will defer till another day.—C. WOLLEY DOD, *Edge Hall, Malpas.*

(To be continued.)

HALF AN HOUR AMONG OUR BRITISH PLANTS.

[A paper read by Mr. W. W. PETTIGREW before a meeting of the Cardiff Gardeners' Mutual Improvement Society.]

SINGULARLY enough very few gardeners try to make themselves acquainted with native wild plants. In fact, as a rule, they are rather apt to speak contemptuously of them, designating them all as weeds. For my part I think this a very great mistake, as every gardener should know at least some of the most important British plants, and also have some knowledge of the principles of classification.

The flora of what we call the British Isles has not always been of the character it is to-day, for in ages long passed away—as some compute it 300,000 years ago—it could hold its own in point of beauty and luxuriance with that of any other part of the globe. This country was then covered with great forests of Tree Ferns, Giant Mosses, Lycopods, Liverworts, and Equiseta, for vegetable life had not then assumed the beautiful forms with which we are now acquainted. As ages rolled on changes took place which slowly but surely altered and modified the forms of plant life. Great earthquakes swallowed up many miles of forest, and altered the whole face of the globe. They seem to have been very prevalent during the infancy of the earth, and it is mainly to them that we are indebted for the coal fields which supply us with so many comforts.

Another change gradually took place, which played a very potent

part in altering the character of the flora, not merely of this country, but of all Europe and the northern hemisphere. The change I allude to is what is generally called the glacial period, or the age of ice. This came on very gradually, thus enabling plants to fly before the pursuing ice to a place of safety. Land which was once covered by tropical forests gradually became the habitat of Alpines, Arctic Mosses, and finally the home of perennial ice. The ice age, unfortunately, annihilated whole genera of plants in Europe, which escaped in North America, for the mountain ranges of the latter country run north and south, thus enabling the plants to travel before the ice without interruption, whereas in Europe the mountains run east and west, thereby blocking the retreat of the plants, which soon perished from the extreme cold. The ice age is believed to have lasted for nearly 160,000 years, at the end of which time the ice had receded to the Arctic circle, and plants which had escaped to more congenial climes began once more to occupy their former abode.

The present flora of the British Isles consists of ninety-four natural orders and 1832 species (Hooker). Comparatively small as this flora is, it is made up of no less than five quite distinct groups of plants. The first of these is called the Germanic, to which the greater bulk of our wild plants belong. They have been derived, as the name indicates, from Germany and the North of Europe. The second, the Celtic Iberian, a rather small section of the British Flora, is confined to the South of England, South Wales, and the South-West of Ireland. It has its headquarters in the South-West of Europe, whence it has found its way to the parts of these islands which I have just mentioned. The third group, to which all our British Alpines belong, and even many of the low ground plants of the North of Scotland, is called the Scandinavian or Boreal group. Three North American plants, found only on the West Coast of Ireland, the Hebrides, and the Island of Skye, form the fourth group. The fifth and last group is the Endemic Flora, or the plants peculiar to the British Isles—a very small group indeed.

The fact that our flora has been derived from the Continent—both north and south—indicates that our island has at one time been joined to Scandinavia, Germany, and France, as the facts I have just mentioned can scarcely be explained in any other way. We have other, and perhaps stronger proofs of this in the form of submerged forests existing in the German Ocean, which must at one time have occupied dry land, and the shallowness of the North Sea and the English Channel is proof enough that water has not always occupied that portion of the globe.

Having given this short history of the flora of these Isles, I will now mention a few of its members. As time is limited and the subject a very wide one I must of necessity be rather arbitrary in my choice. The two plants which I shall first speak about are *Ranunculus acris* and *R. bulbosus*. These both belong to the Germanic flora, and are perhaps the most common of all our wild plants, making the meadows bright and gay during the early summer months with their heads of golden yellow flowers. The natural order to which they belong is *Ranunculaceæ*, a fairly large order made up of thirty different genera. The genus *Ranunculus* is distinguished from the other twenty-nine genera by having a small honey pore at the base of each petal, an arrangement which is not found in any other genus of *Ranunculaceæ*. To the casual observer the two species present no marked differences whatever, and would at once be classed as the common Buttercup. As a matter of fact there are several very important differences between them. *R. acris* has a round peduncle without any furrows in it, spreading sepals, and a straight rootstock, while *R. bulbosus* has a furrowed peduncle, deflected sepals, and a swollen rootstock. Beggars have been known to blister their arms and body with the leaves and stems of *R. acris* to arouse pity and thereby carry on their profession with the greater success.

The next plant I wish to mention is *Chelidonium majus*, belonging to the Natural Order *Papaveraceæ*. It is a very common plant in many parts of the country, and there is nothing specially interesting about it, but its simple beauty and striking foliage make it a good plant for the wild garden. *Viola canina* and *V. tricolor* are two very interesting and distinct plants. The former is commonly called the Dog Violet, the latter the Heartsease or Pansy. The Dog Violet has a procumbent stem, very small stipules, and has its upper petals inclining outwards. It also bears what are termed dimorphic flowers—that is, two different forms. The one is the showy form, usually seen on the plant during the spring and early summer, and does not bear seed. The other is a very insignificant flower, generally without petals, and hardly distinguishable from the foliage. This flower is produced during the autumn, and is usually fertile. *Viola tricolor* is, as I have already said, quite distinct from *V. canina*, as it has large stipules, erect petals, and only one form of flower. The *Viola* is so constructed that it can only be fertilised by the aid of a very small insect, such as a thrips. To attract these insects two stamens are told off into the spur of the lowest petal, and are there transformed into honey knobs, which secrete a sweet fluid when the flower is fully developed.

The natural order *Onagraceæ*, to which the *Fuchsia* belongs, is only represented by three genera in the British Isles. The largest of these is *Epilobium*. *E. angustifolium* is the showiest of all the British species. It grows plentifully beside streams, ditches, and railway embankments, and, wherever growing, the long racemes of bright purplish flowers make it a very conspicuous object. The name Rosebay, or French Willow, is often given to it. *Circæa alpina*, the "Enchanter's Nightshade," belongs to the same natural order. Although it has not the large striking flowers of the last mentioned plant, it has very pleasing foliage, and bears a pretty raceme of minute white flowers.

It is found growing very plentifully in the Highlands of Scotland, and although not exactly an alpine, is found growing within the Arctic Circle.

Heracleum sphondylium is not mentioned so much for its own sake as for affording the occasion of making a few remarks upon the natural order to which it belongs. Possibly there is no other British natural order which has so many genera with different properties as Umbellifereæ. As a rule the same properties run more or less through the whole genera of a natural order. For instance, every plant belonging to Crucifereæ is a blood purifier and fit for food. Every plant belonging to Papaveraceæ is more or less narcotic; nearly the whole of the Compositæ are of a tonic nature. With Umbellifereæ, however, it is quite different, for some species are very poisonous, others narcotic, nutritive, or tonic. Three poisonous genera are *Conium* (the Hemlock), *Cicuta*, and *Oenanthe*. Four esculents are *Angelica*, *Samphire*, *Celery*, and *Parsley*. Three nutritive plants are the Carrot, Parsnip, and Pignut. From two exotic species, *Asafoetida* and *Galbanum*, a gum-resin is obtained, and Anise, Dill, Caraway, Coriander, and Cummin all yield an essential oil. Umbellifereæ is one of the very worst orders for a young beginner to work out, as the distinguishing lines between different genera are so minute that a great deal of patience and skill are required to identify one genus from another.

Matricaria inodora is a very interesting plant, having produced a double sport, *M. inodora* fl.-pl., used very extensively in some places for table and other decoration. The fact that such a useful plant has been obtained from a wild state shows what capabilities for improvement there are in our native plants, and further points out the possibility of a great future before many of the plants now stigmatised as weeds. *Cnicus heterophyllus*, belonging to the same natural order as the last—Compositæ—is one of the most distinct of all the Thistles. It grows very plentifully beside streams and on damp, rocky ground, where its large drooping heads of bright purplish flowers and pale foliage make it a very attractive object. *Campanula rotundifolia*, the "Harebell" or "Blue Bell of Scotland," is one of the prettiest of native flowers, but it must be seen growing in profusion to be fully appreciated. The peculiarity of the *Campanula* is that its stamens ripen before the flower opens and discharge their pollen grains on the ring of hairs underneath the stigma.

Calluna vulgaris, the Ling or Scotch Heather, is found growing very plentifully on the heaths and moors over the whole of the British Isles. The pleasures of the Highlands during the autumn months are greatly augmented by the rich beauty of the Heather, which covers miles of hills and moors, giving to them some of the most pleasing tints that the eye can rest on. It is the calyx, and not the corolla of the *Calluna* which is the attractive portion of the flower. The corolla is completely covered up, and is quite insignificant. *Trientalis europæa*, belonging to Primulacæ, is the only alpine plant which I have included in my present list. It is confined to the northern portion of this island, being found no further south than York. *Echium vulgare*, commonly called the "Viper's Bugloss," belongs to the Forget-me-not family, although it deviates considerably from the type. While being shown through the private department at Kew a short time ago I saw a pot of seedling *Echiums* in one of the forcing houses. In response to my inquiry as to what they were doing there, I was informed that they were flowered in pots and used in the greenhouse, where they formed one of the prettiest groups in the house, and gave rise to a great deal of speculation among gardeners and other visitors as to what they really were. I think it a capital idea to make use of native plants in this way, and I should like to see others treated similarly.

Rumex acetosella, the Sheep's Sorrel, is a very troublesome weed to the gardener. Notwithstanding this it is a very interesting little plant, and produces a panicle of flowers which when examined closely will be seen to possess some beauty. My reason for mentioning this plant is that it illustrates one section of flowering plants which I have not yet mentioned—viz., those in which the male organs are developed on one plant and the female organs on another, or, as they are termed, dioecious plants. *Briza media*, the last on my list, is introduced as affording an opportunity for making a few remarks on the most useful of all the natural orders in the vegetable kingdom. *Briza media* is well known as being closely allied to the Quaking Grass found growing in the borders of most flower gardens and used in vases as Everlasting Grass. Gramineæ, to which order this plant belongs, is one of the most useful of all natural orders, as it includes all of our cereals, most of our fodder and greensward plants, the Sugar Cane, Bamboo, and other valuable plants too numerous to mention. The flowers of the Grasses are rather different from those of most other flowering plants, as they have no calyx or corolla, but are protected instead by bracts called "glumes." Although the fruit (grain) of Grasses is usually wholesome, one of the British species, *Lolium temulentum*, bears very poisonous fruit.

This brings my notes to a close, and I trust that they may result in arousing a feeling of deeper interest in some of our native plants hitherto looked upon as only fit for the Dutch hoe.

ADON MOUNT, DULWICH.

I TOLD last year of some of the summer glories of this beautiful Surrey garden, surely one of the most delightful that the mind could conceive, and in its spring garb it is also of exceptional charm. Its beauty lies in its winding borders, its shady slopes, and its informal banks and nooks. Where Roses, Poppies, Lilliums, Phloxes, and countless

other flowers flourish in the summer, there are now thousands of Hyacinths, Tulips, Daffodils, Scillas, and Primroses making the earth aglow. It is not the materials alone that give such beautiful effects as Mr. James Henderson has provided for the adornment of his garden, but the manner in which thoughtful care and faultless taste have disposed them. It would be unkind to quarrel with those who arrange their flowers in masses of geometrical accuracy, and edge them in the conventional way, for the result is by no means without beauty, but it is impossible to deny that the establishment of irregular groups and colonies, in which due regard has been paid to the harmonious blending of colour, is far more effective. A student can draw irreproachable circles with the aid of a pair of compasses, but it requires an artist to paint a beautiful picture. It might be thought too much to speak of art in the flower garden, but while such places as Belvoir Castle on a large scale, and Adon Mount on a smaller one, exist as examples, there is no cause for despair.

In a shady border overhung by trees Mr. Henderson formed a copse full of Daffodils and Primroses, and in winding through its leafy glades



FIG. 61.—LÆLIA LATONA. (See page 350.)

is found one of the great delights of his garden in spring. Both bulbs and plants luxuriate, blossoming with a richness and freedom that they do not display in sunny exposed beds. The Daffodil most largely represented is the graceful, tremulous Tenby (*Narcissus obvallaris*) a charming kind for naturalising. The flowers present a broad sheet of colour, amidst which shines the pale hue of the Primroses. These would be classed as the common yellow if the exceptional size of the flowers were overlooked, but are evidently a selected form. Some would be tempted to add warmth of colour by introducing Anemones, Scillas, and other bright flowers amongst the others, but as the tender and delicate blending of the Daffodils and Primroses grows into the mind it is felt that wisdom has been exercised in excluding them. Could a few clumps of Violets be introduced into quiet corners here and there, from which unperceived they could diffuse their rich odour as though from a neighbouring hedgerow, a grateful sweetness would be imparted not out of keeping with the surroundings. In the garden proper the finest of the Narcissi, Hyacinths, and Tulips flower brilliantly, and as the generous provision that is made for future occupants of banks just formed is noted the secret of their success is apparent. An ample depth of good soil is provided, and it is kept so finely pulverised as to be readily accessible to the wholesome influences of the air, and while stones and burrs are abundantly used they, and not the soil, are subservient.

In the labour of love to which Mr. Henderson devotes the evening of a long and arduous life of work, the share of others can only be one of sympathetic appreciation, but its lessons will bear fruit, it may be hoped, in the gardens of the future, when the taste and knowledge are developed of which we now herald the dawn.—W. P. W.



EVENTS OF THE WEEK.—As mentioned in the last issue, "Duneevan," the beautiful residence of the late Mr. James MacIntosh at Oatlands Park, Weybridge, will be offered for sale to-day (May 12th) by Messrs. Farebrother, Ellis, Clark, & Co. at The Mart, Tokenhouse Yard, London, E.C. On the 13th 125 plants of *Cattleya Victoria Regina* will be offered, with other plants, at Protheroe & Morris's rooms, by order of Messrs. Sander & Co. Committee meetings of the Royal Horticultural Society will be held at the Drill Hall, James Street, Westminster, on the 17th, and on the 18th the Royal Botanic Society's summer Show will be held at Regent's Park.

— **THE WEATHER IN LONDON.**—The brilliant weather which favoured the opening of the International Horticultural Exhibition on the 7th inst. has continued up to the time of going to press. The barometer indicates fine weather, and is firm, while the atmospheric surroundings are sunny, genial, and warm. The wind is north-easterly.

— **DEATH OF DR. REGEL.**—We regret to have to announce the death of His Excellency Privy Counsellor EDUARD VON REGEL, Director of the Imperial Botanic Garden at St. Petersburg, which occurred on the 27th April in the seventy-seventh year of his age. Dr. Regel was born at Gotha 13th August, 1815, and was formerly Superintendent of the Botanic Garden at Zurich before he received the appointment to St. Petersburg. He was an ardent and hard-working botanist, and published many valuable treatises on various botanical subjects. His name is closely associated with the *Gartenflora*, of which he was for many years the editor. In 1868 he published his *Pomona Rossica*, a richly illustrated work on Russian pomology, but which, being written in the Russian language, is a sealed book to many who would otherwise like to consult its pages.

— **ROYAL HORTICULTURAL SOCIETY.**—The next meeting of the Society in the Drill Hall, James Street, Victoria Street, Westminster, will take place on Tuesday, May 17th, when prizes are offered for competition amongst amateurs who exhibit Indian and hardy Azaleas and Pelargoniums (Zonals excluded). In the afternoon at 3 P.M. a paper on "Hardy Climbers and Creepers" will be contributed by Mr. W. C. Leach. The Great Annual Flower Show of the Society will take place at the Inner Temple Gardens, London, on May 25th and 26th. Intending exhibitors should communicate at once with the Superintendent, R.H.S. Gardens, Chiswick, regarding the space they require, and stating the nature of their exhibits.

— **HORTICULTURAL CLUB.**—The usual monthly dinner and conversation took place on Tuesday last, the chair being occupied by H. J. Pearson, Esq. A paper (which we give in another column) was read by Martin R. Smith, Esq., and an interesting discussion, in which most of those present took part, followed. We understand that there will be a special dinner on the 25th, the opening day of the Temple Show.—D., Deal.

— **VEITCH'S MODEL BROCCOLI.**—I should like to say a few words respecting this very excellent Broccoli. Amongst all the leading sorts I can safely say I have never seen its equal, although I have grown late varieties extensively for many years. I have a plantation of Model now coming on, the plants just showing signs of heading, and they will afford a supply up to the end of June. None has stood the severe winter like this variety. I have lost hundreds of other sorts, and the plants which have stood are small and of very little use, but Model is robust and fine, nearly equal to some sorts of Cauliflowers.—C. HAZEL.

— **EATON HALL GARDENS.**—Mr. Nicholas F. Barnes has been appointed gardener to the Duke of Westminster at Eaton Hall, Chester. Mr. Barnes was foreman for six years at Floors Castle, Kelso, and accompanied Mr. McKellar to Sandringham in the same capacity. The gardens at Eaton rank among the finest and best equipped in the kingdom, and only a man of proved ability could be entrusted with their management. The *Kelso Mail* says:—"Mr. Barnes' numerous friends will be delighted to learn of his early preferment, which is creditable not only to himself but to Mr. McKellar, whose training has doubtless had much to do in fitting him for so important a post."

— **EARLY CABBAGES.**—We have received notes on early Cabbages from several correspondents, but their publication must be deferred to a future issue.

— **BIRKENHEAD AND WIRRAL HORTICULTURAL ASSOCIATION.**—The sixth annual Exhibition of Chrysanthemums, Fruit, and Plants has been fixed for Thursday, November 10th, and a well-varied schedule has been arranged.

— **THE NEW GARDENER AT HIGHBURY.**—We learn that Mr. William Earp, late gardener to Sir W. Eden, Bart., Windlestone Hall, Ferry Hill, Durham, has been appointed to succeed the late Mr. Cooper as head gardener to the Right Hon. J. Chamberlain at Highbury, Birmingham.

— **SOMERTON HORTICULTURAL SOCIETY.**—At a meeting of this Society the other day much satisfaction was expressed at the takings of last year, the report was adopted, and the officers were re-elected. This is a pleasant record to make. Would that all other societies could share in the smiles of Somerton.

— **MADAGASCAR PLANTS AT KEW.**—It is reported that "M. Baillon, Paris, has presented to Kew Gardens some 400 species of Madagascar plants, about half of them from the western side of the island. A considerable number of the specimens are types of novelties published by Dr. Baillon, and therefore possess a special value."

— **THE WILLIAMS' MEMORIAL TRUSTEES** have decided to offer the following medals this year.—Temple Show, a large Williams' Memorial silver medal for the best group of Orchids (amateurs). International Horticultural Exhibition at Earls Court, a Williams' Memorial medal and £5 to the winner of the first prize in class 23, on the Show to be held on the 27th and 28th of May.

— **HORTICULTURE AT THE CHICAGO EXHIBITION.**—At the World's Exhibition—where by the way 6000 men are now working—E. S. Denison, of Alameda county, Cal., intends to exhibit a Pumpkin weighing 326 lbs., while in the Michigan exhibit will be a representation in wax of 500 specimens of fruit which grow in the State. It will be prepared by a Kalamazoo woman.

— **DEATH OF MR. WILLIAM DAVIES.**—Mr. W. Davies, the oldest and one of the most respected gardeners in Glamorgan, passed away quietly after a few days' illness on the 2nd inst., in his seventy-ninth year. Mr. Davies held the situation of head gardener to the late Thomas Booker, Esq., and family, at Velendra, near Cardiff, for the long period of forty-seven years. He was a good all-round gardener and an enthusiastic Pine Apple grower up to the time of his death.—A. P.

— **STRAWBERRY LA GROSSE SUCRÉE.**—Permit me to corroborate Mr. Chinnery's note on page 315 as to the merits of this Strawberry as a first-rate sort for forcing. We have grown it for that purpose now for the past fifteen years, having drawn attention to its merits as a good forcer in the columns of one of your contemporaries in the spring of 1877. Out of a batch of about 1200 plants grown for forcing we have this year nearly half of them La Grosse Sucrée, our other two standard kinds being Keens' Seedling and Vicomtesse Héricart de Thury. With us La Grosse Sucrée comes in several days earlier than either of the two named when a batch of each kind are put in for our first picking, which is usually ready the first week in March. During the early days of April we picked fruits that weighed over three-quarters of an ounce each, though we could not get any to pull down the ounce weight.—H. J. C., Grimston.

— **THE HORSHAM HORTICULTURAL SOCIETY** has, says a Sussex paper, closed the year much more satisfactorily than it was at one time expected would be the case. The atmospheric conditions attending the Exhibition last autumn were most unfavourable, storms of rain interfering with the erection of marquees, and continuing with such baleful persistence as to be responsible for a decrease in the "gate" receipts of nearly £15. As a horticultural display, however, the Show was one of the best, if not the best, ever held under the auspices of the Society, the new feature of competitions for groups of flowering and foliage plants adding considerably to the attractiveness of the Exhibition. At the annual meeting it was stated that the total number of entries reached 1795, and that more than 1200 members and visitors braved the storm in order to view the fine display of plants and flowers. A decidedly unfavourable balance-sheet seemed at one time highly probable, but, thanks to increased pecuniary assistance, the Committee have been able to show a small balance—£1 10s. 1d.—on the right side of the accounts. Given fine weather the Committee believe the Show will "continue to hold the reputation of being the finest, largest, and best in the south of England."

— **MICE IN SCOTLAND.**—The mice are playing havoc in many places, and much Heather has been burnt to exterminate them, but it will not do so. I intend trying a trap to catch them by the hundred. It is simply a box of any size fitted with a trap, and continually baited. The trap is a modification of the bee trap first mentioned in the *Cottage Gardener*.—W. T., *Blantyre*.

— **ZONAL PELARGONIUM** the REV. H. HARRIS is a variety worth setting a mark against. The colour is a clear brick red, shining in its effect. The truss is of the largest size, with the pips not crushed together as is the case with so many sorts, but loose enough to allow nearly every petal to be seen to advantage. This with Amy Amphlett, white; Constance, pink; Helen Carke, salmon; Stella Massey, apple blossom; and Brilliant, crimson, form a very select collection.—B.

— **THE LATE MR. EDWARD COOPER.**—We last week gave a brief notice of Mr. Cooper's death. His funeral was attended by a very large number of his old gardening and other friends. The Right Hon. Joseph and Mrs. Chamberlain sent a very beautiful wreath, as did also the Misses Chamberlain. Mr. Austen Chamberlain, M.P., attended the funeral, and sent a beautiful cross on behalf of himself and his brother now in the Bahamas. A large number of beautiful floral tributes were sent, amongst others from Messrs. Pope, Thomson, and Hewitt, local nurserymen, from the Birmingham Chrysanthemum Society, and from the two local gardeners' associations.

— **BIDLESTON HORTICULTURAL ASSOCIATION.**—Though the modest sum of £1 3s 10d. is all that represents the difference between the expenditure and receipts of this Association during last season it is a balance on the right side, and may therefore be regarded with satisfaction. At the annual general meeting Mr. J. L. Growse was unanimously re-elected President, but Mr. H. S. Walter resigned the post of Secretary, and Mr. G. S. Western was elected in his place.

— **RECREATION**—Young gardeners especially, and not a few of the "old boys" of the craft, are interested in cricket, and many employers of men, believing that recreation is good, assist them in obtaining it. A "match list" has reached us from Reading, and in it we note that not only is every partner in the firm of Messrs. Sutton & Sons an officer of the Cricket Club connected with their establishment, but that thirty-five matches are arranged in which the two teams will engage during the season.

— **BECKENHAM HORTICULTURAL SOCIETY.**—The schedule of this year's Exhibition, which is to be held on Wednesday, July 27th, reaches us, and appears to be well varied in character. Amongst the donors of special prizes are Messrs. Laing & Sons (Begonias), Reid and Bornemann (Zonal Pelargoniums), Carter & Co. (Peas), and Sutton and Sons (vegetables). In another special class the first prize is a banjo and the second a meerschaum pipe. If the winner of the former should happen to be a skilful player the Committee might save themselves the expense of a band.

— **RHODODENDRONS AT DROPMORE.**—When, at the recent Easter-tide, so many gardeners were compelled to content themselves and employers with Daffodils, Callas, or other forced flowers for church or domestic decoration, Mr. Herrin was enabled at Dropmore to supplement his contributions of that kind with an abundance of beautiful red and crimson Rhododendron flowers cut from the open ground, where there are many big bushes blooming profusely, as also of several white or flesh-tinted forms. It was indeed a matter for surprise, when recently walking through the extensive woods and shrubberies, to meet here and there with these precocious Rhododendrons. They were blooming just as freely in the open as beneath trees, though it was noticeable that where some overhanging growth furnished shelter the blooms had suffered less from frost. One noble head stood up about 20 feet high, covered with trusses of fiery red flowers. It is a pity such bloomers as these cannot be more common; how valuable would they prove in gardens! We rather reserve our Rhododendron strength as a rule for the end of May and the month of June onward, yet a good bush of one of these early bloomers would be worth half a dozen that bloom when Rhododendron flowers are plentiful. Good plants of these early kinds lifted and put into warmth could easily be had in bloom in March, while the pale-hued ones would probably come under glass almost pure white. Azaleas were bursting into bloom in various directions so early as the 29th ult., and ere this appears in print will probably be almost in full flower. Generally the Azaleas promise better for bloom this season than do the Rhododendrons, especially of the old Britannic type; still there will be a fine show of flowers on the latter, no doubt, later on.—A. D.

— **DEATH OF MR. M. MITCHELL.**—We greatly regret to have to record the untimely death of this promising young gardener, who for the past four years has had charge of Mr. W. Cunard's considerable market fruit gardens at Orleans and Lebanon House, Twickenham. The deceased was married, and leaves two young children, one only six months old. He was only twenty-nine years of age, of the most genial nature and kindly disposition, and has left behind him, as much on the part of his staff as friends, a strong feeling of profound sorrow. Mr. Mitchell was engaged in the work of tying out laterals in a vinery at Orleans House Gardens on the 25th ult. The house is divided by means of a glass partition, against which the ladder on which he stood was placed. The ladder, through some cause, suddenly turned round and threw the unfortunate man against the partition, terribly lacerating his right arm, so much so that he bled profusely, and it was needful to convey him to the neighbouring hospital for treatment. There the cuts in the arm were sewn up, but blood poisoning seems to have ensued, also partial delirium, so that Mr. Mitchell was unconscious until his death, which took place soon after midnight on the following Saturday. It need hardly be said that in local gardening circles this untimely death has caused considerable sensation. Apart from being a first-class fruit grower, as the Grapes, Peaches, Nectarines, Strawberries, &c., testify, he grew Chrysanthemums well, and last year took first place for grouping plants at Kingston, Teddington, and Twickenham, all of a first-class character. Some 11,000 plants of Strawberries President, Sir J. Paxton, and Sir C. Napier are annually fruited at Lebanon House, and the crop this year, so far, has been a grand one. Peaches and Muscat Grapes also are in great bulk and full of promise—indeed, could not look better anywhere.

— **THE LATE FROSTS AND THE FRUIT CROP.**—On the morning of May 7th the grass thermometer registered 20°, and the minimum in the Stevenson screen close by was 26°; on the 1st the minimum on the grass was also 20°, and in the screen 27°. Red Currants suffered severely; Gooseberries sustained injury, but not enough to seriously damage the crop. Black Currants are in fair condition at present, the majority of the flowers being still unopened. The blossoms of Early Rivers Cherry on standards are nearly all killed; later varieties not in flower still safe. Damsons escaped, although many flowers were open. Plums were showing only a small quantity of blossom, and much of this is spoiled. Morello Cherries on walls are comparatively safe, very few flowers being open. Pears are not showing well this season, and many expanded blossoms were killed, while those still in bud are not hurt; all our trees are on walls. Peaches flowered very thinly outside; the thermometer at zero three times in one winter, and following such a dull, wet summer much of the young wood succumbed; the flowers which did come set well under the protection of double fish netting, and are still safe. Apples are only showing a moderate amount of blossom this season; a few trees which only bore thin crops last year are, however, very full. Some have felt the frost very much. Although not in blossom yet (May 7th) the small buds are much damaged, especially where the leaves are most unfolded. The prospects of the hardy fruit crop here are, therefore, not very encouraging, and there is probably more frost to come.—W. H. DIVERS, *Ketton Hall Gardens, Stamford*.

— **CINERARIAS AT FARNHAM ROYAL.**—There can be no doubt but that the ancient reputation for a fine strain of Cinerarias which the late Mr. J. James possessed is being well sustained by his son at Farnham Royal. I saw there just recently a remarkable collection of upwards of 3000 plants all in good-sized pots, and such as any gardener would be only too pleased to have for his greenhouses, really a wonderful sight, filling long house after house, and presenting, so far as the Cineraria is concerned, almost an unequalled spectacle. Most of the plants are arranged in blocks of colour, white, carmine or cerise, reds of shades, blues, and purples, and apart from these, which are selfs, are the edged or ringed flowers, of the same hue of colour, and on the whole the most striking. Naturally here, where plants are grown to produce seed, they are not pushed on in heat. The flowering season begins about the middle of March and runs through to the middle of May; after that the plants assume a seedy aspect. Sown usually in July in cool frames the seed soon germinates, and the efforts of the grower are then primarily devoted to the keeping the plants cool and sturdy. Too many Cineraria growers make the mistake of pushing on their seedling plants and looking with satisfaction upon monster leafage. Then later the bloom heads are comparatively small and disappointing. That is not the practice at Farnham Royal, where the soil is kept comparatively dry rather than over-moist; hence the remarkable sturdiness of the stock,

and the equally remarkable size and fine form of the flowers. By far the greater portion of the plants are from seed; some, however, of the best forms are propagated yearly. In some large pots, into which three of a variety of these propagated plants were blocked, were some very fine specimens, broad, dwarf, sturdy, and carrying the finest of flowers.

— THE WEATHER IN APRIL.—The month was bright, fine, and warm up to the 12th, but changeable after, with snowstorms and severe frosts. We had fourteen bright days, five of which were altogether clear. The wind was in a northerly direction twenty-one days. Snow fell early on the 25th. The total rainfall was 0.85 inch, which fell on twelve days; the greatest daily fall (of snow and rain) being 0.32 on 27th. Barometer highest reading, 30.49 at 9 A.M. on 1st; lowest, 29.51 at 9 A.M. on 16th. Highest shade temperature, 72° on 5th and 6th; lowest, 25° on 1st, 2nd, 3rd, and 27th; lowest on grass, 18° on 1st, 2nd, and 27th. Mean maximum temperature, 58.06°; mean minimum, 32.26°. Mean temperature of the month, 45.13°. The garden spring ran 30 gallons per minute on the 30th. Nightingale first heard on 26th, cuckoo on 28th. Horse Chestnuts and Sycamores expanding their leaves at the end of the month; everything very backward.—W. H. DIVERS.

— AZALEAS AT SLOUGH.—The Azaleas are particularly striking at the Royal Nurseries, not the large show plants so well known by exhibitors, which are not yet in flower, but some small plants of comparatively new varieties. Amongst them are to be seen Perfection de Gand, a single, with large deep rosy red flowers, very showy; Vervaeana, semi-double, bright pink, having a broad margin of pure white, and spots of deep carmine on some of the petals; Theodore Reimers, very large and double magenta-purple flowers of great substance; Madame Hermann Siedel, a charming semi-double white variety, many of the petals splashed with bright pink; President Oswald de Kerchove, pure salmon, with a few spots, the edges of the petals being white, it is perfectly double, and almost faultless in shape; Souvenir de Louis Van Houtte, rosy carmine, semi-double, flowers very large and borne in profusion, making the plant conspicuous immediately on entering the house; Ami du Cœur, another particularly fine variety, with very double salmon-red flowers; Pharalde Mathilde, a handsome flower, double, white, with broad smooth petals splashed with cerise, and spotted slightly with green; Dominique Vervae, a dense orange-scarlet, very large single flowers, spotted with deep red; Princess Louise, a lovely pure white, the flowers being perfectly double, and of good size; and Madeleine, a semi-double pure white, excellent, the plant being a mass of large substantial flowers. The plants are in splendid condition, and show that Mr. Turner's grower, Mr. John Wilder, is a master of his work.

— FROST AND CATERPILLARS.—Naturally readers would be somewhat puzzled at the seeming contradiction of Mr. J. Hiam's notes and mine on the effects of frost on caterpillars. I am sure no one would doubt that Mr. Hiam had found them killed by the frost on the later unopened buds, as he is too careful an observer to make a mistake. At the same time what is an actual fact in his district is not so here; and to indicate what a difference there is in a limit of about five miles I may state that on the morning of April 30th we registered 2° of frost, while at Ross, 2½ miles away, they registered 9°, and at Perrystone Court, less than five miles away, 8° were registered. So that it is obvious that effects will vary considerably. On reading Mr. Hiam's note on page 315 I went to examine an orchard near, belonging to a farmer who has let all insect pests have their fling. I question whether the trees will survive the allied attacks on them this year, as they are swarming with caterpillars, aphids, psylla, Apple blossom weevil, and in fact everything insect that the Apple seems heir to, and it is very evident that frost has done little or nothing towards the destruction of the latter. I only wish greater havoc had been wrought on our insect enemies, and less damage done to the fruit crops by the frost, though we have not much to complain of here. Unless we get more unfavourable weather our prospects are good for a full crop of Plums, a fair crop of Pears—all the early blossoms were killed—and a good one of Apples.—S. T. WRIGHT.

INTERNATIONAL HORTICULTURAL EXHIBITION.

A GREAT GARDENING DISPLAY OPENED BY THE DUKE OF CONNAUGHT.

ON Saturday, May 7th, in the presence of a large and fashionable assembly, headed by the Duke and Duchess of Connaught, and under the most favourable conditions as regards weather, the International Horticultural Exhibition was started on what promises to be a useful

and successful career. It is many years since a great standing exhibition composed principally of features of horticultural interest was held in this country. The last prolonged show was in 1866, but the present one is essentially different. Since the last "International" great changes have taken place. The love for gardening in all its phases has enormously increased. Cultivators may be numbered by thousands now where they were counted in hundreds then, and in all ranks, from the highest to the lowest, there is a wider interest in plants and flowers than existed a quarter of a century ago. It would not be without interest, doubtless, to trace the development of gardening since that time up to the present, pointing to the number of exhibitions now held and to the attendances they command, to the increase in the number of parks and open spaces furnished with trees and flowers, to the multitude of cultivated gardens and glass houses that have sprung up in the two and a half decades, to the immense scale on which floral decorations are conducted, to the enlargement of markets, and last, but perhaps the most significant of all, to the great development, both in numbers and extent, of our plant nurseries. These are all signs and indications of an upward movement, showing, by the irrefutable evidence of facts, the work that has been going on. But the times are too pressing to allow us to dwell at length upon the past, and so, with a passing comment on the growth of horticulture, and a tribute to the memory of all those who helped in the good cause before they were called away, we must turn to the present and note what lessons it has to teach us.

The preparations for the present Exhibition have been in practical hands. The Earl's Court Exhibitions syndicate wisely elected to gather together a General Committee of experienced horticulturists in order that the many details inseparable from an affair of such great scope should be grappled with by those best qualified to master them, and in the selection of Mr. H. E. Milner, F.L.S., C.E., as Chairman, they took a step the wisdom of which has been abundantly justified. From first to last he has displayed a grasp of business principles, a mastery of details, an energy and a tact that could not but bear good fruit, and whatever the financial result of the venture may be Mr. Milner has done his work artistically and well. He has made a reputation and won a popularity amongst horticulturists that are likely to live long after the present season and its Exhibition have passed away. The place chosen was, as is now well known, the large extent of ground lying between Earl's Court, West Brompton, and West Kensington stations that was the scene of the American Exhibition in 1887, and has since been devoted to others of special continental interest. It comprises several acres, and is divided by the railway into two sections. An arrangement having been made for a second visit by Buffalo Bill and his troupe, illustrating life in the Far West, one section has been devoted to their arena and encampment, while the other has been reserved for the gardens and horticultural exhibits. The principal entrance is in Lillie Road, quite close to West Brompton station on the District and West London extension railways, from which, via Victoria, Kensington (Addison Road), Clapham Junction, and the various underground stations all parts can be reached without difficulty. This admits to the horticultural side, while from Earl's Court station the "Wild West" portion of the grounds are entered. As, apart from the train services, omnibuses run to the Exhibition by various routes, reaching it is a matter of ease, rapidity, and cheapness.

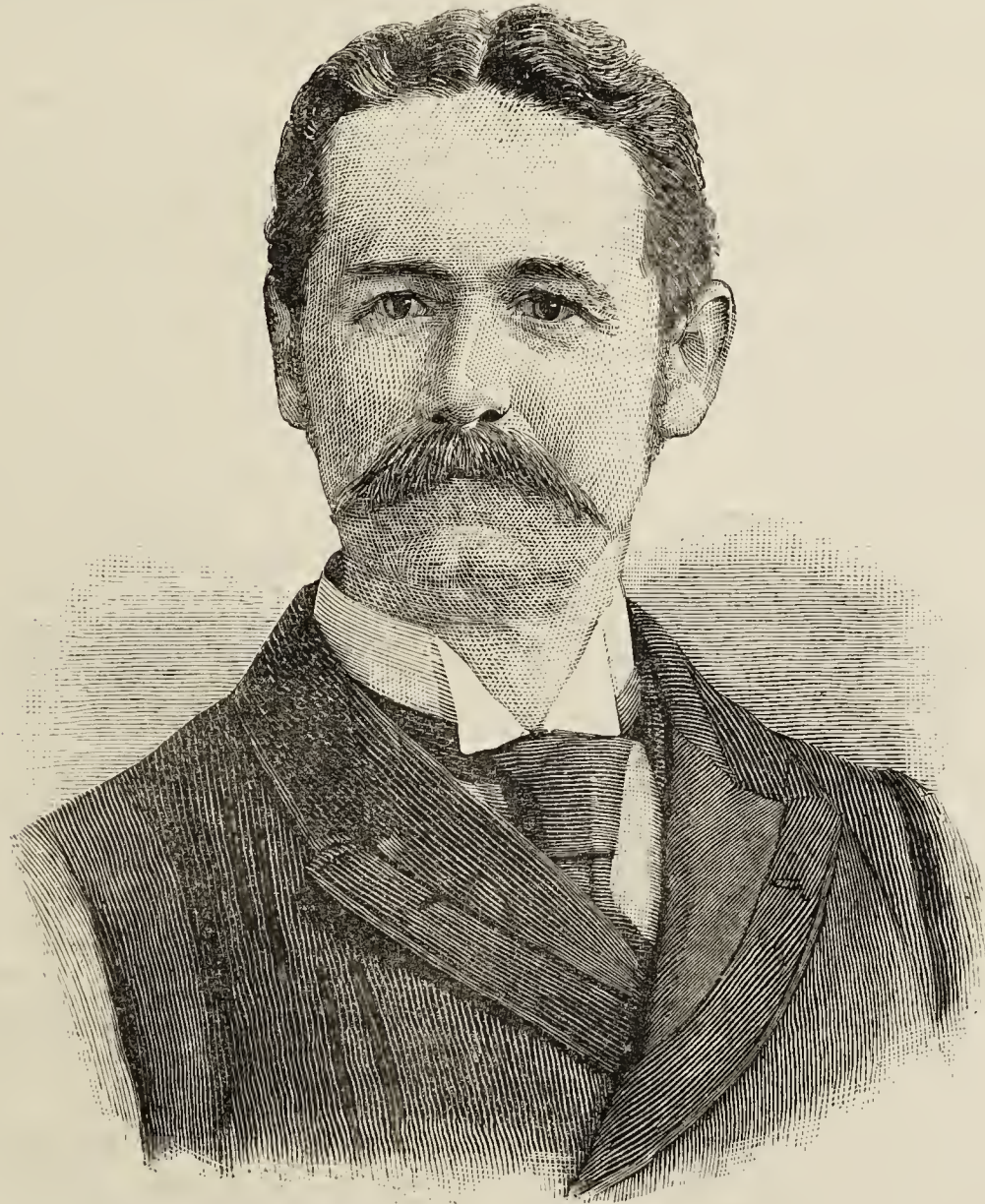
A handsome medal has been struck in silver, gold and bronze, and will be awarded for meritorious exhibits throughout the season. It has been designed and executed by Mr. John Pinches, and affords a further proof, if any were needed, of his skill in this work. The engraving (fig. 63, page 359) shows the design and inscription on the obverse side, with the motto of the exhibition, "*Tibi suavis Dædala tellus summittit flores*" (to thee the creating earth hands up her sweet-smelling flowers). We have pleasure also in inserting a portrait of Mr. Milner (page 357) in recognition of his ability as a landscape gardener, and he is well known as a courteous and estimable man.

THE DISPLAY IN THE SIDE HALL.

The opening ceremony on the 7th inst. was fixed for twelve o'clock, and shortly after that time the Duke and Duchess of Connaught arrived. Their Royal Highnesses were met by Mr. Milner, and amongst those present were the Bishop of London and Mrs. Temple, Lord Manvers, Baron de Worms, Lord Rowton, Lord Ashbourne, Sir G. Baden Powell, Mr. Henniker Heaton, the Persian and American Ministers, Lord Denman, Sir Charles Mills, Sir C. Tupper, Lord Cranbrook, Sir Guyer Hunter, M.P., Sir F. Milner, M.P., Lord Balfour of Burleigh, Admiral Sir J. Hay, Admiral Mayne, Colonel and Mrs. North, Colonel Cody (Buffalo Bill), Mr. G. A. Loveday, and many well-known horticulturists, including Baron Schöller, and various prominent nurserymen. Before passing through the main building a beautiful display of plants and flowers in a side hall immediately to the left of the entrance was visited. This was an exhibition in itself, there being numerous groups, also many tables beautifully furnished. The first group on the right consisted of shrubs and plants, Rhododendrons and Azaleas, with Liliums, Spiræas, and others, from Messrs. C. Lee & Son. A case of insectivorous plants, comprising *Drosera dichotoma*, *D. capensis*, *Dionæa muscipula*, and several *Sarracenias* came from Messrs. B. S. Williams & Son. Messrs. W. Paul and Son, Waltham Cross, contributed two beautiful groups of Roses, comprising standards and large bushes, also dwarf plants, and several boxes of cut blooms, interspersed with Ferns. Mr. T. S. Ware sent a delightful table of his specialities, amongst which Irises, Liliums, Daffodils, *Doronicums*, *Saxifraga pyramidalis*, and *Primula Sieboldi* in great variety, were noticeable. Messrs. Cannell & Sons had a table of succulent plants,

boxes of their fine Tuberous Begonias, double and single, and handsome trusses of Zonal Pelargoniums, the whole forming a bright and interesting display. Messrs. Hugh Low & Co. had a cheerful collection of Azaleas, Ericas, Boronias, Hydrangeas and other plants. Messrs. Reid & Bornemann exhibited their design for laying out an estate of 100 acres, and Messrs. W. Wood & Son have also prepared a design that will make them doughty opponents. Mr. W. Rumsey had a beautiful group of Roses in pots and cut blooms which did him the utmost credit. Messrs.

Ornithocephalus grandiflorus, Dendrobiums Griffithianum and densiflorum, Cypripediums barbatum Warneri and Morganæ, Oncidium superbiens, Calanthe Sanderiana, Odontoglossums Pescatorei, gloriosum, and luteo-purpureum, Cattleyas Mendeli and Mossiæ, Chysis bractescens, and many others. Mr. Charles Turner had a beautiful display of Auriculas, and another of small Azaleas full of bloom. Messrs. E. D. Shuttleworth & Co. exhibited a handsome group of foliage plants. Messrs. J. Laing & Son had two tables of Orchids and foliage plants



H. L. Milner

H. Lane & Son were well represented by a brilliant bank of Rhododendrons, Roses, and Lilliums with several baskets of Polyantha Roses. Messrs. J. & J. Hayes had a group of Pelargoniums, a rich display of bloom. Messrs. Barr & Son had a very extensive display of hardy flowers, amongst which Narcissi, Anemone fulgens, Spiræas, Tulips, and Marguerites were conspicuous.

Some magnificent blooms of Souvenir de la Malmaison Carnation, both the rose and blush varieties, were sent by Mr. Jennings, gardener to L. de Rothschild, Esq., some being 4 to 5 inches across. Messrs. B. S. Williams and Son had a large table of Orchids and Amaryllis, the former including

and another of cut flowers, such as Narcissi, choice Tuberous Begonias of their well-known strain, Tulips, Anemones, and Primulas, the trio forming a handsome contribution. Messrs. W. Cutbush & Son had a table of Daffodils and another of Doronicums, Irises, Daffodils, Crown Imperials, and other flowers, both being very attractive. Mr. R. Dean had a table of brilliant Primroses, and he staged the new Duke of Connaught, nearly black, silver laced, and the Duchess of Connaught, yellow ground Auriculas. Messrs. J. Peed & Sons had an admirably furnished table of foliage plants and Orchids. Mr. Phippen exhibited baskets of flowers very tastefully furnished; Mr. Hudson, gardener to

Messrs. de Rothschild, showed excellent bunches of Black Hamburg Grapes from pot Vines; and Messrs. J. James & Son had a beautiful assortment of Cinerarias.

THE OPENING CEREMONY.

After this display had been inspected the Royal party proceeded down the centre of the main Exhibition building, which is about a quarter of a mile long, very wide and lofty, to a circular platform, at the back of which was a huge dividing curtain. Mr. Milner read an address of welcome, to which the Duke of Connaught responded as follows:—"In declaring this Exhibition open, I hope that every success may attend it, and that it will produce the results which you, Mr. Milner, and those gentlemen who have come forward in your support, so anxiously desire. I am sure this country only requires to see what can be done in the way of the culture of flowers—in the way of horticulture—to understand what a great scope there is, not only for beautifying our cities and parks and houses, but also for making money and benefiting the country at large. When they realise these aims they assuredly must appreciate the exertions made to provide an International Exhibition such as this, and derive great benefit from its existence. I am happy to think that in this most inclement of seasons the sun has shone upon us, and I hope we may regard this as an augury of success for the International Horticultural Exhibition." On concluding his remarks the Duke pulled a cord connected with the curtain above referred to, this was drawn aside, and it was found that the remaining portion of the buildings had been laid out as a beautiful landscape garden, furnished with expanses of turf borders, banks, and groups of trees, shrubs, and plants. Fuller reference to this beautiful indoor garden will be made later on. It was greatly admired by the Duke and Duchess of Connaught, both of whom are much interested in gardening, and know good work when they see it. They afterwards made a tour of the beautiful gardens and grounds before leaving.

THE LUNCHEON.

This was held in the Restaurant Français, and that spacious building was filled almost to overflowing, there being about 500 ladies and gentlemen present. Mr. Milner was in the chair, supported by the Bishop of London and Lord Manvers. The repast was an excellent one, and at its conclusion the toast list, which was commendably small, was proceeded with. The first toast, "The Queen," was briefly proposed by the Chairman, and duly honoured, the second and last "Prosperity to the International Horticultural Exhibition," by the Bishop of London. Dr. Temple spoke eloquently of the delights and benefits of gardening. He said there could have been no more successful opening. A walk through the grounds proved that everything had been done with the greatest care and skill. It would have been difficult to arrange an exhibition of the sort which would give a larger amount of pleasure to a larger number of people. This Exhibition was started in the hope that it would be an encouragement, not only to all lovers of flowers and to all who loved them so much as to give a good deal of time and trouble to their cultivation, but the appeal which was made to flower growers everywhere was very gladly and largely responded to, and the many flowers they had seen in the Exhibition had been given by the growers in order to grace the opening day. It was twenty-six years since such an exhibition of this kind was held in South Kensington, and anyone who was present then and could compare it with what was to be seen now would be able to judge of the improvement which had been made in the cultivation of flowers in the interval. The promoters of the Exhibition desired, if possible, that the same improvement might be still further improved, and most assuredly they were doing a very great service to humanity in promoting their beautiful art. He drew attention to the series of special shows that were to be held, and asked them to join in wishing prosperity to the International Horticultural Exhibition. Mr. Milner's response to the toast, which was most cordially received, was brief but admirably expressed, in fact just what such a reply should have been considering the character of the Exhibition, the reception of the toast, and the fact that time was extremely limited.

THE LANDSCAPE GARDEN.

If there is one feature that stands out from all the others by its intrinsic excellence and beauty it is the delightful indoor garden, which occupies the last 150 yards of the main building. It is an admirable idea, admirably carried out. It is a vision of beauty as seen indistinctly from the main entrance, and on a closer inspection reveals charming scenes of natural effect. Its winding walks and attractive groups tempt one to linger even when the sunshine is brightening the gardens without, while in unfavourable weather it will form, with the remainder of the great building, the most magnificent promenade in London. It is broad, spacious, brilliant with blossom, and replete with fragrance—a garden in the best and truest sense of the term. It is intended that it should form a permanent attraction, therefore its present occupants will be replaced by others when their beauty fades, and so on through the season. In its spring guise the garden is a delightful one. Two long irregular borders at the sides, undulating and broken on the right hand side by a rocky pool and waterfall, have been furnished in a manner worthy of their reputation by Messrs. B. S. Williams & Son. Lofty Araucarias, handsome Aralias, Acers, Crotons, and Conifers harmonise with Lilliums, Spiræas, Rhododendrons, Azaleas, Coleuses, Cinerarias, Fuchsias, Heaths, Boronias, Marguerites, and other beautiful flowering plants. The first of the groups are a handsome pair on the left and right from Mr. Charles Turner,

which are furnished with Palms, Cycads, Acers, Lilliums, and a beautiful display of Roses in pots. Passing round two fine oblong groups are noted that have been formed by Messrs. Cutbush & Son. They comprise Palms, Cycads, Acers, Euonymuses, Aralias, Azaleas, Heaths, Mignonette, and Saxifraga pyramidalis. Between these is a heart-shaped piece of turf furnished with two small beds adapted to its configuration, the upper one being semicircular and the lower pyramidal, converging to a point at the base of the heart. The former has been filled with standard, bush and small Azaleas in full bloom by Messrs. B. S. Williams & Son, and the latter with Cinerias and standard Azaleas. Two large irregular groups have been furnished by Mr. G. Phippen, and he has also a bed of Azalea mollis. Further on is another handsome group by Messrs. Cutbush & Son, bright with foliage and flowers, and near it is an oval bed of Azalea mollis \times sinensis which produces a splendid effect. It has been filled by Mr. M. Koster of Baskoop, Holland, and the varieties represented are conspicuous by their excellence. Two more handsome groups by Messrs. B. S. Williams & Son complete this portion of the garden, and at the end are three beautiful banks from Messrs. J. Laing & Son. The central one, in which a gigantic Araucaria imbricata is the most conspicuous feature, is very attractively arranged, Acers, Aralias, Rhododendrons, Spiræas, Hydrangeas, Azaleas, and other flowering and foliage plants being effectively intermingled. Messrs. Laing & Son have received a silver medal and certificates for various exhibits.

THE GARDENS AND GROUNDS.

The gardens cover several acres, and have been laid out in a diversified manner. There are large groups of plants and shrubs from leading nurserymen, also representations of Chinese, Japanese, Tudor, Roman, Egyptian, Italian, and Jacobean gardens. On entering them from the landscape garden just referred to, a large and handsome structure is found that it is to be devoted to insectivorous plants. It has been erected by Messrs. Crompton & Fawkes of Chesham, and is spacious enough to hold a large and varied collection. On the opening day it was not finished, but will probably be furnished by the time these lines appear in print, or very soon after, and will be referred to again. A broad, sloping, undulating bank of dwarf Conifers from Messrs. Cutbush & Sons is one of the first features of the grounds to be noticed, and further on they have planted a large group of Hollies, which produce an excellent effect. Messrs. Lane & Son have arranged a large group of Rhododendrons that are now full of buds, and will make a rich display later on; also a group of Conifers. Messrs. J. Laing & Sons are represented by a bed consisting chiefly of dwarf alpine and other plants plunged in cocoa-nut fibre refuse. Saxifraga aizoon, S. nepalense, S. ajugæfolia, Iberis Tenoreana, Lychnis alpinus, Achillea umbellata, Sempervivum acuminatum, Armeria maritima Lauchiana, Herniaria glabra, the creamy Cytisus præcox, and Doronicum caucasicum were noted amongst them. Messrs. C. Lee & Son have a group of hardy ornamental trees and shrubs, such as Euonymuses, Acers, Rhododendrons, Cupressus, and dwarf Hollies, which produce a good effect. A group of Conifers comes from Mr. A. Waterer, Knaphill. Near the end is a large bed of Bamboos, and as a crowning feature of this portion of the grounds there is a remarkable representation of the Long Walk at Windsor with the Castle at the end. Path, turf, and trees are admirably depicted in this huge painting, and the perspective is so perfect as to deceive the visitor until he is close to it. Mr. Halley is to be credited with this splendid piece of work, and also with the excellent paintings that afford so delightful a background to the landscape garden. A flower market is being erected near, and in this and other portions of the grounds bright flower beds and shady nooks furnished with seats are provided, stands having been erected for the bands engaged, which, be it mentioned, comprise some of the best.

THE GARDENS OF THE WORLD.

Interest is added to the Exhibition by the various gardens referred to above, but the inclement weather has militated seriously against furnishing them effectively, and some of them are incomplete. When matters have settled down and a good spell of fine weather is vouchsafed they will no doubt be improved. To general visitors the Indian Tea Garden is likely to prove the most interesting of them all. A square has been planted with Tea (Bohea), and plants growing in pots are also shown. Mr. Macgregor, an experienced Tea grower, has charge, and it is intended to show the whole process of Tea-making, from the withering and rubbing to the drying on charcoal fires and the preparation of the popular beverage. In the Japanese garden close by we find Retinosporas, Hollies, Japanese Maples, Cupressus, Aralias, Cryptomeria japonica, and other Japanese plants, with a temple in the background. The Tudor garden is furnished with appropriate scenery, and the trim flower beds are filled with Irises, Daisies, Doronicums, Pansies, Polyanthuses, and other old-fashioned flowers. In the Roman garden colonnades and statuary are introduced as scenery, and there is not much in the beds except Box and patches of white stone—a combination that does little credit to the ideas of the beautiful entertained by our ancient conquerors. In the Egyptian garden we find scenery representing pyramids and Palms, quaint animal figures, and strange hieroglyphics. Date Palms, Cycads, Callas, Bamboos, and Acacias are the living occupants. The Italian garden will be a delightful enclosure when the beds are filled. It is surrounded by a low wall, and seats are placed around, fairy lamps lighting up the beds at night. The same remarks apply to the Jacobean garden, near which is a splendid group of Rhododendrons planted by Messrs. W. Paul & Son, Waltham Cross. On the

right is an arch of cordon fruit trees as grown by Messrs. Cheal & Son at Crawley, also cordons as trained to fences and horizontally, with a few bushes, which provide a little lesson in fruit growing. A floral maze is another feature.

There is an extensive display of greenhouses, heating apparatus, mowers, pottery, and various horticultural sundries in the main Exhibition building, and it is well worthy of inspection.

HEATING APPLIANCES AND HOUSES.

Prominent amongst the heating appliances are the boilers, pipes, and connections of the Thames Bank Iron Company, which form an imposing collection. Their patent horizontal tubular boiler, without doubt one of the best in the market, is shown; also saddles, including the Back Waterway Course Saddle, a much-improved form; the Trentham; the Amateur Independent; the London Upright, an excellent wrought iron boiler with waterway all round; and the Amateur Saddle, a form of small boiler with many advantages, and which ought to be in great demand. They also exhibit their excellent rotary valve. Taken altogether this stand does the Company great credit. Mr. J. Jeffries exhibits radiators for halls and small structures. Messrs. Crompton & Fawkes have their improved slow combustion boiler in working order; that it is one of the best and most powerful of the upright class has been well proved. It is fitted in a handsome and lofty conservatory, which well represents another section of this firm's operations. Mr. W. Duncan Tucker exhibits a large and well built conservatory, and his new patent sash-bar, which is grooved at the base inside, so that moisture condensing and running down the bar is carried away instead of dripping into the house, a simple and useful device. Messrs. S. Deards & Co., Ltd., Mr. Newton, Mr. Thos. Bones, and Mr. R. Stevens show systems of glazing without putty, and Messrs. Mackenzie and Moncur have a handsome conservatory constructed of teak. Mr. J. Bennett, St. Albans, has small amateurs' structures. Mr. F. le Poidevin exhibits his Combination saddle and Tubular boiler, and Mr. J. Watson his Suspension boiler. Messrs. W. Richardson & Co. have sent an effective exhibit from the north, comprising a large and well constructed conservatory, several frames, and many boilers, including their Patent Hooded Tubular boiler, a combination of tubular and saddle which is, no doubt, very powerful. Their new patented system of ventilation is worth inspection, being ingenious and effective without having a number of complications. Messrs. Newton, Chambers, & Co., Ltd., exhibit boilers, pipes, connections, mowers, and rollers.

LAWN MOWERS AND POTTERY.

Messrs. W. S. Iles & Co. have a large stand of pottery, comprising pots of all sizes, pans, vases, rustic ware, window boxes, ornamental tiles and hanging pots. It is very effectively arranged. Messrs. Ransomes, Sims, and Jeffries, whose mowers are to be used in the Exhibition gardens, have a splendid stand of their famous machines, the demand for which is so great that they have had to erect a special factory to cope with it. The Anglo-Paris is their latest introduction, and it is a beautifully finished and admirably designed machine. The Automaton is a handsome and excellent mower, and this is now supplied either with chains or gearing. A feature of all Ransome's machines is the exceedingly simple Single Screw adjustment, which a child could manipulate. Messrs. Doulton and Co. exhibit vases and bowls of different ware for terrace columns and fountains. Messrs. Sankey & Son have a splendid display of pottery, comprising garden pots ranging in size from thumbs to 30 inches in diameter, bowls, perforated pots, pans and fluted tiles with pockets for plants. In quality and finish they are of the best. In this connection mention may be made of Messrs. F. Rosher & Co.'s fine display of stone work, such as figures, fountains, and balustrading. The stone is a special preparation unaffected by the weather. They have a fountain at work with ornamental stonework, and show a model of the extensive work they have carried out for Mr. Alfred de Rothschild at Tring.

MANURES AND INSECTICIDES.

Of food for plants and deadly compounds for plant enemies there is an extensive assortment. Messrs. W. Clibran & Son have a large case of their Fumigating Insecticide and Lemon Oil, both of which are articles of proved value, the former affording a ready, pleasant, and effectual means of fumigating plant houses. Messrs. Corry & Co., Ltd., have a fine display of their excellent specialties, such as Tobacco Powder, Lethorion and Floral Cement. Messrs. C. Clark & Co. exhibit Vermorel's Knapsack Spraying Pump L'Eclair and also La Torpille, both of which afford convenient means of distributing insecticides. Mr. G. W. Davis has a stand of his concentrated fertilisers. Messrs. W. Wood & Son are represented by a large and comprehensive display of insecticides and fertilisers; also of peat, baskets, bamboos, and a great variety of horticultural sundries. The Stott Insecticide Co. have a stand of their excellent specialties, such as the valuable insecticide Killmright and the useful fertiliser Feedmright; also their spray distributor and syringe, each provided with chambers for insecticides, through which the water is forced and emerges in a fine display. Mr. W. Colchester has a stand of his Icthemie Guano, which is in considerable demand as a plant food. Mr. J. George exhibits a stand of Thomason's Vine Manure and various horticultural sundries. Messrs. B. S. Williams & Son have a stand containing examples of the Thanatophore, a most effectual form of fumigator; also of Tobacco juice for steaming, and of their Eureka Shading, the back portion being brightened by plates from the "Orchid Album." Mr. J. Bentley has a stand of the excellent manures and insecticides of which he makes a speciality.

MISCELLANEOUS EXHIBITS.

Messrs. Fisher & Sharpe exhibit a large assortment of Bamboos. These make excellent flower stakes, and are sold in various sizes for that purpose. They are also formed into ladders, umbrella stands, chairs, racks, and other articles. Mr. J. Pinches has cases of his Rose, fruit tree, and Orchid labels, which have the great merits of clearness and durability. The Spinnicer Grip Armoured Hose Co. have a very fine stand of plain and armoured hose in grey and red rubber, the high quality of their best protected hose being widely recognised. They also have reels, water barrows, and fire extinguishers. Messrs. D. Rowell and Co., and the Economic Fencing Co. exhibit gates, railings, and fencing. Messrs. P. Mayfair & Co. have their patent fruit evaporator, peeler and ringer, all of which were shown in use some time ago at Chiswick. Ornamental ware is shown by Mr. J. Falconer, Mr. A. Mackie, and Messrs. Ardesbir and Byramji; while thermometers and barometers are exhibited by Mr. J. Davis, Mr. G. Crawley, and Messrs. R. Springate and Co. Messrs. Needham & Hendy have small self-acting fountains; Mr. E. Sydney refrigerators for fruit and other foods; Messrs. Heathman and Co. combined telescopic ladder and steps; Mr. W. Edwards his "easy-levelling" rake; Messrs. Pulham & Son stone figures, vases, and balustrading; Mr. G. Riley a rustic house; Messrs. G. Shearod & Co. zinc labels; Messrs. B. Hembry & Co. straw blinds; Messrs. Chaffey Bros. fruit from the Australian Irrigation Colonies; Madame Goffton flower paintings; and Messrs. Shand, Mason & Co. hose hydrants, while a handsome stand of Cadbury's cocoa, though not a horticultural exhibit in the ordinary sense, gives a reminder of a beverage that is esteemed in



FIG. 63.

gardening as in all other communities. Messrs. Jarman & Co. are the only exhibitors of seeds, which is much to be regretted.

It is not impossible that in the foregoing comments some feature of interest or some exhibit worthy of mention may have escaped attention. If so the omission shall be rectified at the earliest opportunity. As one or two exhibitors have still to take possession of the space allotted to them, and as the character of the Exhibition will be changed from time to time, one notice of it cannot be complete. In the meantime, as the success of the Exhibition is of much import to the profession and pastime of gardening, the support of all who have the advancement of horticulture at heart is earnestly sought for it. The permanent attractions and the shows that will be held from time to time will be found potent factors in popularising gardening, and their influences will react beneficially on all classes, with results that time alone can reveal, but which cannot do other than advance the great cause of horticulture.

THOUGHTS ABOUT TOMATOES.

As a grower of Tomatoes for home consumption and for sale I have been much interested in the notes contributed by your able correspondents. I endorse the remarks of Mr. J. B. Riding that it is a question whether we shall ever have such a remunerative crop as in 1887, more especially outdoors. Since the year named I do not think they have paid for the time and trouble, owing to disease and unfavourable seasons. A point worth mentioning is the advantage of change of seed occasionally. For some six years I saved my own seed, selected from the finest fruit on the most prolific plants. This answered admirably for about four years, but afterwards the plants showed a lack of vigour, and became more infested with insect pests than before, particularly the white fly. I tried all the remedies named in the Journal, some with good and others with indifferent results; but the best and most effectual mode of destroying white fly and other aphids that I know is Campbell's fumigating insecticide. I have used it now for three years with the greatest satisfaction, and to any grower troubled with white fly I would suggest a trial of it. I agree with Mr. W. P. Wright—who by the way is a stranger to me—that Tomatoes will pay for some time to come; and though they may not be such good return as formerly, still there is money in them when grown in suitable structures by competent men. Where our interests are most affected is in the preferential rates accorded to foreigners. One of the largest continental growers informed me some time ago that he could put Tomatoes, or almost anything else, on the London markets at a less rate than I could, and judging from the immense importations, which appear to annually increase, growers in this country will have to produce very heavy crops of first-class produce to insure really good and remunerative returns.—S. T. WRIGHT.



JUDGING ROSES.

"MORTALS rush in, &c.," hence this effusion in a comparative outsider as regards judging Roses. Personally, I have always felt that the "have beens" deserve prizes far more than the "never wases" or "never will bes." The glories of the past have still the aroma of former beauty upon them, an aroma that the others will never attain. In my very early days of Rose love I took six fair sized blooms eleven miles by road, and although one of the faded blooms was larger than the opposing six heaped together I was behind in the Judge's eye. I felt then, as I still do, that the judgment was incorrect. The question is, Can the method of judging be altered? Shall I say improved? At present I understand it as three points for a bloom good in form, size, and colour, with an additional point for extra excellence in one or more of these qualities. Mr. Biron wants to know how judges are to estimate fadedness, and how to punish it when seen. It seems to me, in my ignorance, that we have first to decide whether these three qualities—form, size, and colour—are of equal value. Personally, I should answer this question very decidedly in the negative. It seems to me that form is very decidedly the most essential—indeed, a great failure in this would make the grandest Rose in size very unsightly, the more so possibly on account of its size.

The Perle des Jardins side slit of which Mr. Biron writes is a great blemish, but there are degrees in it, and some Roses with slight fingering are not destitute of beauty, even with this unsightly blot. The ordinary regular form of a Rose bloom is that the petals should curve round a central point, which point should remain invisible. Still, I cannot help thinking that there are some deviations from orthodox form which cannot be called unsightly. Many of us have seen Xavier Olibo, for instance, having a double centre as it were, and although it certainly detracted from the special beauty of form, it had still some of this very valuable quality left that should count. If, then, we are agreed that form is the chief essential, size is the next quality in value. It means, as a rule, success in cultivation, always bearing in mind that size, plus coarseness, is in some degree a blot. Lastly, we have colour. This is a quality that very often depends on the particular weather at the time the bloom is cut, and so is often outside the cultivator's efforts, unless his pocket be equal to extra demands for protection. I am quite prepared to agree with the lack of colour in many Teas, but in spite of this they are not faded blooms, whereas an H.P. deficient in colour has a dispirited, used-up aspect, sadly diminishing the glory of any bloom, however large. The Tea petal bears up against the fading of colour, while the H.P. seems to give way to it.

Well, then, would it be a help in judging to give form three points, size two, and colour one? This point calculation only comes in when two or more stands appear to be very even. Often the position is seen at a glance, and no question of points is necessary. This notation would make a much greater difference in two stands apparently about equal than the other plan.—Y. B. A. Z.

IN his former letter I understood Mr. Biron to limit his remarks about judging to the question of colour. He now opens the whole subject, and especially the most important head of form, and on this he would find me, I think, as severe as he could wish. The example taken is "a Perle des Jardins with a folded split at the side of the flower." This is the fault commonly known as being "divided," and the variety named is so well known as liable to this defect, as practically to remain outside the list of show Roses. The same deformity is also, however, too well known to all our best sorts, and is most often found in the very strongest specimen blooms we have.

Show Roses are unnaturally grown. By high feeding, and especially by severe thinning, which comes to the same thing, an abnormal amount of food in the form of sap is conveyed to one bud. And just in the same way as, at this very moment, Nature, in my own case, is showing (in my great toe) her resentment at well meant but too liberal efforts to increase my convalescence, so our very strongest, most vigorous, and best fed Roses are apt—not exactly to have the gout—but to be interfered with in their regular development, producing what Mr. Biron quite rightly calls "monstrous" forms. The difficulty, therefore, in growing show Roses is to regulate the flow of sap to the buds, so that each has as much as it can bear, but not too much. And this is best managed by prudence in gradual thinning. Let the stronger sorts and stronger individuals have more main shoots than the others; and afterwards, if the laterals break very freely, do not in forcing weather necessarily rub them all off at once. But this is a very difficult matter to estimate properly. I confess that I generally have a good many "divided" blooms; and often it is the most cherished specimen, of which I have had the highest hopes, that shows this terrible fault just as it is ready to be cut.

In judging a "divided" Rose I would again remind Mr. Biron that there must be degrees and gradations of "good" and "bad" Roses. A Rose may be twice divided, that is "quartered," so as to form four points, which would be the most aggravated phase of this deformity.

Again, it may be completely divided from the centre to the very outer petals on one side, and except in the direct extremity I should never stage such a bloom; or, as the most venial form, it may be that only one or two of the innermost petals are doubled back or incorrectly folded. This, if seen, is still a serious fault; but as "division" is most fatal in the most perfect shapes—the "pointed" or "high centred"—so it may well happen that an apparently faultless bloom may be exhibited sufficiently blown to be considered in the most perfect phase of beauty, and yet afterwards when further expanded show a slight fault of division in the centre. I can remember at least one, Catherine Mermet, of my own with which no fault could be found when it gained the medal, though it showed division in the centre the next day. But I think, as Mr. Biron knows, that more severity should always be shown to faults of form than to those of colour.

In speaking of faded Teas I did not mean "overcooked" blooms, whatever they may be, but what I said was that all pink or yellow Teas are more or less faded even in the bud when grown out of doors, and not most carefully shaded by some means. I think Mr. Biron's definition of a faded Rose would hardly answer, and that such definitions would tend to hamper judges. Some of the red H.P.'s would very easily lose "their distinctive character," and some other Roses would retain theirs, however faded, to the last. I still fancy we have enough of definitions and limitations, and that more would tend to hindrance and argument, which, in the very short time available for judging, are to be avoided as much as possible; but I believe discussions like the present one are of real service in aiding accuracy and uniformity in judging.

MAGGOTS.

"Rosier" will find that nothing but constant examination and hand-picking will be of avail during the maggot season, and I imagine he will be much readier for the National this year than I shall be, for I have very little besides the bare wood as yet for the maggots to feed on. A late season is generally prolific of grubs; in a really early one we cut them, or the eggs from which they are hatched, away at the pruning.

WHAT IS MARÉCHAL NIEL?

In answer to Mr. Divers, Maréchal Niel is not a true Tea but a Tea-scented Noisette. Teas and Noisettes are now almost universally classed together, and Niels would be most welcome in a box of twelve; but alas! are comparatively seldom seen. Owing to the cross-breeding now going on the N.R.S. has been obliged to put all true Teas, all Noisettes, and all hybrids between Teas and Noisettes in one class, and all other hybrids of Teas, Bourbons, &c., in the great Hybrid Perpetual class. This is the more necessary now that we have such a Rose as Margaret Dickson, which is a cross between a Hybrid Perpetual and Hybrid Tea; but the respective positions of Grace Darling in the H.P. class, and Gloire de Dijon in the Teas, are still anomalous to my thinking.—W. R. RAILLÉ.

DAFFODILS AT HAM.

THERE is not probably in all the kingdom such a display of the Daffodil family as Mr. J. Walker has had at Ham, near Kingston, during the present season. He planted last autumn, on the whole, about 25 acres of the deep sandy soil of his bulb farm with these flowers, and in looking over this breadth it was not at all difficult to imagine a slice of Holland laid before us. Especially was this the case in the huge breadths of the beautiful R. Poeticus ornatus, of which there were alone, and perfect sheets of snowy white, fully 10 acres. This is, indeed, bulb culture *in extenso*, and presents very different effects from those obtained where only a few scores or hundreds of bulbs are grown. Every bulb that can be found is lifted after the foliage has ripened off fully, hardened in the sun, then sorting and replanting is done later in fresh soil, following usually upon vegetable crops. Early Potatoes or Peas form admirable ground cleaners for bulbs. Generally, these are planted in rows 12 inches apart in beds of seven rows, and with an interval of 2 feet between the beds. A circumstance to be noted in reference to the ornatus masses was that the outer row of the beds, in all cases on the side next the sun, invariably showed the earliest flowers, showing that fuller air and sunlight tended to promote precocity.

It is difficult, in relation to the 90 to 100 acres of land which Mr. Walker has here converted into a flower and fruit garden, to compare the cost of labour employed on the land as compared with what was spent in the same direction not so many years ago when the soil was only an ordinary farm. Whilst the labour bill is probably ten times as great now as it was then, it is also probable that the pecuniary value of the produce from the area is fully twenty times as great. Certainly the millions of bulbs grown must represent an immense sum, whilst their flower produce alone would be immense also. How it is found possible to keep pace with the abundance of the bloom it is difficult to understand. Probably not more than one-half of it, after all, finds its way to the market. It may be that perhaps Daffodil culture for market flower production has nearly reached its maximum. Flowers are now so wonderfully cheap and abundant, that to the ordinary observer it would seem as if it were not possible to find room for more in the market. Happily there is in the Daffodil not only great wealth of variety, but the flowers run over a long season. The old double yellow, literally everybody's flower, is one of the earliest, and the double white Poeticus, blooming late in May, is the latest, so that the season ordinarily runs over three months. Then so many are easily forced in a moderate

temperature that a month earlier may still be tacked on to the Daffodil period, which now runs from the end of January to the end of May.

Only firm picked bulbs should be potted for forcing, and it is worthy of note that many failures may be avoided if the pots or boxes in which the bulbs have rooted freely under a mulching of cocoa fibre outdoors are, before being put into heat, first placed for a fortnight in a very moderate warmth indeed, so as to, as it were, accustom the bulbs to a change of temperature before they are placed in the forcing houses. Still, it is unwise to have this temperature too high. Mr. Walker forces finally in his earlier Peach houses, of which there are some of great size at Ham, and in a temperature of from 60° to 65°. To some extent outdoor blooming may be checked by late planting, and where so many bulbs are grown it is needful to extend the season of flowering over as long a period as possible. The gathering of flowers is chiefly done by boys, as women's skirts are objectionable, and in bad weather the blooms are carried into sheds for bunching, but in good weather they are, to save trouble, often bunched as gathered near the beds. Apart from what Narcissi have done for the grower, there can be no doubt but that they have brought a good livelihood, and in some cases competence, to workers, whether male or female, but especially to dealers, who have found material for trading during the spring months which no other flower presented. Still further, Daffodils have cheaply carried sweetness and beauty into myriads of households, which would otherwise have been devoid of flowers.

As to varieties grown at Ham, beyond ornatus, verily their name is legion. Emperor, Empress, Horsefieldi, Maximus, Lorenzo, John Stephens, Albicans, Stella, Barri conspicuus, Princess Mary of Cambridge, Maurice Vilmorin, bicolor grandis, rugulosus, these are but a few noted hurriedly out of the many, all of which find special demands for them in the market. The enormous preponderance given to ornatus shows, however, how greatly it is in request. Giving glorious variety to the otherwise somewhat monotonous hues of the Daffodil are large quantities of single and double Tulips in long lines of the most beautiful hues. Prince of Austria, Keizer's Kroon; Thomas Moore, orange buff; Rose Grisdelin, Rosa Mundi; Canary Bird; Artus, deep crimson scarlet; Duchesse de Parma; and numerous doubles are represented. The matter of special interest about these beautiful Tulips is that they have been grown by Mr. Walker for some ten years, and, therefore, show that first-rate bulbs can be produced at home; indeed, it is found that new Dutch bulbs are never a whit better, if so good, on the whole, as are those which are purely home-raised.—A. D.



SEASONABLE HINTS.

THE long continued cold winds have had a chilling effect on the plants which are being cultivated for the production of large blooms, so much so that in some cases the colour of the leaves has been changed from the deep green so pleasing to the grower to a much paler hue. It behoves the inexperienced to act with caution in the matter of air-giving, not exposing the plants entirely to the elements during such weather. On some days a hot sun has driven the thermometer up to 76° in the shade, and on the next few perhaps it has been quite the reverse, the highest reading not being more than 55° with a night temperature very little above 25°. Such variations are very trying to plants, especially when grown at a high rate of speed, and it is absolutely necessary to push them along at this period to lay a foundation for future success. I have always held the opinion that it is not possible to grow the plants too strong at this stage of their existence. Direct draughts of cold air will cause paleness of foliage on plants that are a little late through the cuttings not being available as soon as desired, and they are kept a little closer in the frames for awhile to push them on in order to make up for lost time. Plants growing under such conditions ought to be ventilated with caution during spells of cold easterly winds. Avoid direct draughts and also the employment of cold water to the roots. It is far better to spend a few more minutes on them than to neglect such apparently small details. It is difficult to say why certain sorts are so much more prone to loss of colour in the leaves than others. Boule d'Or, Madame J. Laing, Mrs. Wheeler, Meg Merrilies, and Edwin Molyneux are sinners in this respect, and it is especially noticeable where the soil employed is inclined to be heavy in spite of the quantity of lightening material added to it. This subject should prove an interesting theme to some "scientist."

I note some of the newer varieties, such as Vivian Morel, are very persistent in forming bloom buds instead of making a free growth. No doubt such varieties were weakened by hard propagation to meet the demand for stock, and the results are now apparent. Where this is observable it is a wise plan to cut them down to the soil level, which induces a more vigorous growth to spring from below. One pleasing feature that I note about the majority of the new varieties this season is the dwarf habit of growth they are assuming. As a rule they have broad foliage and short-jointed stems, which is a step in the right

direction. Madame C. Audiguier, beautiful as she once was considered to be, will very soon be but little grown. Fancy comparing this variety, 14 feet high, with others equally good in the quality of their flowers, but not more than a fifth as tall. The introduction of dwarf growing kinds will assist in popularising the growth of Chrysanthemums for large blooms. Few persons can manage plants of the maximum height.

Where flowers are in demand during September and October it would be a wise step to pay more attention to the cultivation out of doors of the Madame Desgrange type of early flowering varieties. The white original, with the soft and deep shades of yellow of G. Wermig and Mrs. Hawkins, are just the flowers which are in favour at the time of the year at which they are ready. They are much appreciated in long spikes for filling vases in the house, and when associated with autumnal foliage a pretty effect is produced. By liberal treatment during the summer months free growth is induced, and it is best if the shoots are not topped, but allowed to grow uninterrupted until they flower. It is necessary to maintain the plants erect by a loose form of staking them. Their beauty in a cut state is very much marred by the crooked growth made when the branches are allowed to lay on the ground any length of time. Either old or young plants are useful for this mode of culture.

CONFUSION IN NOMENCLATURE.

I do not intend to take part in a discussion with "Lancastrian" anent Chrysanthemum Golden Queen of England v. John Lambert, because it is a settled fact, in my mind, that they are one and the same. To give separate names to plants of one variety only leads to confusion, and possibly to the disqualification of some person who accepts in good faith what others say, and who, unfortunately, has not personal experience. When "Lancastrian," or anyone else, has the courage to stage blooms of both together in competition for prizes, and they are accepted as distinct, then will be the time to assert the distinctness of John Lambert from the original Golden Queen of England. It is true that I grew cuttings of the supposed sport, but the variety was never named anything else here but Golden Queen of England. As such I obtained a certificate at Chiswick, and not because it was an improved form. With a wide experience of Chrysanthemum exhibitions I cannot call to mind one instance where the two have been staged as distinct. Surely this would be a test of its merits. Why should I wish to disparage any variety which is generally admitted to be both distinct and an improvement upon existing sorts?—E. MOLYNEUX.

ROYAL HORTICULTURAL SOCIETY.

MAY 3RD.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair), Mr. Morris, Dr. Scott, Mr. Michael, Prof. Church, Rev. G. Henslow, Hon. Sec., and Mr. E. im Thurm, visitor.

Narcissus Basal Rot.—Specimens of the variety Troilus were sent by the Rev. W. Dod, with the following communication:—"Of this variety thousands go off every year. With regard to the disease I observe, (1) in places where plants get little or no sun, though they do not flower well, the rot never comes; (2) It attacks particular varieties, e.g., Ard Righ, Spurius coronatus, and Golden Spur worse than others; while Horsefieldi, Emperor, and all of the muticus blood are entirely exempt. The incomparabilis tribe never show a symptom of it, however delicate their growth may be; nor do any poeticus or other delicate Narcissi, such as triandrus; (3) The best preventive is annual transplanting. Maximus used to suffer here, but by this means I now have a large and healthy stock of this form."

Raspberry Canes Diseased.—Mr. G. Massie reported on the plants sent to the last meeting from Holly Lodge, Highgate, as follows:—"The black patches on the stems are caused by a minute parasitic fungus belonging to the genus *Dothidea*, probably *D. rosæ*, Fr., but as the specimens are immature the species is not certain. Spiræa and other rosaceous plants suffer from the attacks of species of *Dothidea*. In all known cases the spores germinate at once when mature, and then infest the younger shoots; hence the entire removal of all diseased portions before the spores are mature is imperative."

Conifers, Growth of.—Photographs were received from Mr. Cartis, of Kensington, showing the comparative growth of a Silver Fir (*Abies pectinata*), and of a Douglas Fir (*A. Douglasi*), which grew side by side for twenty-two years. The former was 10½ inches in diameter, the latter 19½ inches. The trees were taken from a plantation in Ireland, in a soil equally adapted to both. The comparative results showed strongly in favour of the cultivation of the Douglas Fir as a timber tree in Great Britain and Ireland.

Odontoglossum citrosum, Monstrous.—A blossom was received from Mr. Bull, in which there were three well-developed stamens and three lips, the two extra lips representing two lateral stamens.

Tulip Leaf, Monstrous.—Dr. Masters exhibited a leaf showing a very thick midrib, which was densely clothed with thick and branching cellular processes, which bore stomata and hairs at certain points; a remarkably hypertrophied condition of a not uncommon peculiarity of certain Tulips, which have a row of hairs on the bulb scale, but not, however, on the leaf.

Orchid Leaves Attacked by Beetles (?).—Mr. Ingram of Elstead forwarded some leaves of imported Orchids attacked apparently by beetles. They were forwarded to Mr. Pascoe for examination.

Azalea Sport.—Mr. G. Paul sent sprays of *Azalea mollis* with yellow flowers, but associated with others which were pure white, the petals being only about three-quarters of an inch in length. The stamens, five in number, were almost included together with the pistil, within the short tube of the corolla. Mr. Paul reports that "It was a chance seedling, and possibly the flowers might have been fertilised with some of the other varieties of *Azalea*, such as *pontica alba*; but I think that the reversion to white is through the yellow forms of *mollis*, which have smaller flowers as a rule than the orange coloured kinds, which also open with a whitish shade."

Pine Apple, Monstrous.—Mr. Morris exhibited a photograph of a tall variety of a Pine Apple from the Straits Settlement, from Sir Hugh Low. It was called the Hen-and-Chickens, as it produced a number of smaller Pines from the base of the stem. They were described as being of a bright red colour, and of excellent quality.

Carnations Diseased.—Mr. McLachlan reports that the name of the fly which attacks Carnations, referred to at the last meeting, is *Hylemyia nigrescens*.

IRIS PALESTINÆ.

THERE seems no end to the new Irises with which we are being favoured through the enterprise of collectors, and still we can welcome each new addition with great pleasure. Last autumn I received one under the above name; and although frame culture was recommended for it, it was planted on a rockery facing almost due south, where it has remained without protection all the winter and spring, no slight test, as the season has been worse than for many years. I can find no notice of *I. Palestinæ*, and for my information of its native habitat have to depend entirely on the account given by the vendor, who stated that it grows in the valley of the Jordan near Jerusalem, where it is said to flower from October to November. It is also said to be allied to *I. alata*, and the whole appearance of the plant bears out this statement. The first flowers opened on April 9th, and although not showy were singular and attractive, being of a similar form to those of *I. alata* and about the same size. They are white, freely marked with oblong green blotches, and the yellow streak down the centre of the falls is profusely spotted with small blackish-brown dots. The leaves are about 8 inches in length, $1\frac{1}{2}$ inch broad at the base, and tapering to a sharp point; bright green underneath, with conspicuous ribs. The upper surface of the leaves, when examined, presents a curious and pretty appearance, looking as if profusely covered with a thin silvery or a slight hoar frost, and the edges are whitish. The whole plant is only about 5 inches in height. Each plant was said only to produce one flower, but from my two plants I have had three flowers. Of course the test of one season is insufficient to establish the hardiness of *I. Palestinæ*, but should it do as well as this season, when *I. alata* in the same position perished, it would be a welcome addition to our rock garden plants.—S. ARNOTT.



HARDY FRUIT GARDEN.

TRAINING YOUNG FRUIT TREES—Attention must be paid at the present time to young fruit trees recently planted in order to see that a proper branch foundation is laid for forming the future tree. In many cases young trees will have been pruned back with this end in view. With these, therefore, little is necessary just now beyond the selection of the best placed shoots for training in the desired directions. Others that have not been pruned at the proper time, but ought to have been to secure strong basal growths, may be disbudded to positions on the branches where shoots are desired to start. The disbudded portion can afterwards be cut back when the foliage has developed. Early autumn-planted trees sometimes need but little pruning if the desired form of training had been partly secured before planting, and that was effected without a great loss of roots. Some of these trees will have developed short spurs with an abundant show of blossom buds. It is not desirable to retain all these, as if the majority set exhaustion of the tree must inevitably follow in the task of perfecting the fruit. It is better by far to severely thin the blossoms and allow only a few fruits to swell on the strongest parts. There is an advantage in doing so when trees exhibit a tendency to grow strongly the first year. The practised eye can soon detect this, either from knowledge of the variety, the present appearance of the trees, or acquaintance with their condition when planting, as well as the method in which this important operation was carried out. A light crop of fruit on an abundantly rooted tree often checks grossness, conducing thereby to a better balanced growth of wood. Should, however, extension of the trees be the main object, filling the allotted space quickly being aimed at, then no fruit ought to be allowed to remain. Rather concentrate the energies of the trees in producing main branches and lateral shoots, care being taken that such are evenly distributed by a wise system of restricting strong growths and encouraging weaker, suppressing an undue amount of foliage in vigorous parts by stopping and retaining it in the weaker.

HORIZONTALLY TRAINED TREES.—To effectively clothe a wall or espalier trellis with horizontally trained trees requires very careful management from the first in order to maintain a due balance of growth. To do this it is necessary that buds for forming the lower branches should start strongly and take the lead both in strength and length, each successive pair above these being shorter. This is very important in maintaining the equilibrium as well as adding to the appearance of the trees. Start each pair of branches from buds situated just below the shortened point of the leader, which must also have a strong bud to continue its growth, checking it again at the desired height for obtaining another pair of side branches. A foot between each pair is ample, and any buds or shoots between on the central stem should be rubbed out. In training the branches allow them to take an upward tendency, as the sap will flow better. They can be gradually lowered to their permanent positions afterwards. Lateral growths on the branches must be pinched back at the fourth full-sized leaf (not counting small basal leaves) to enable fruit spurs to form. Apples and Pears are chiefly grown when this mode of training is adopted.

FAN-TRAINED TREES.—Apricots, Peaches, Nectarines, Plums, and Cherries are grown successfully on walls by this method. Dwarf-trained trees are employed on ordinary walls, half-standard on higher walls, and tall standards on still higher positions. Training, however, mostly consists in continuing the form, the foundation of which has been laid in the nursery. It is essential that good breaks be secured from some part of each shoot for continuing the extension. Such may be assured by shortening the branches before growth actively commences in spring, or, if neglected until too late, disbudding to suitable growths. Fan-training is best adapted for stone fruits because of their liability to lose branches, which can be easily replaced by training in other growths. The chief points in fan-training consist in maintaining an equally balanced growth of wood and foliage, avoiding overcrowding in any part of the tree. Plums and Cherries do not always bear on the one-year-old wood, but on that of two-year-old growth and on spurs. Apricots bear on both kinds of wood, Peaches, Nectarines, and Morello Cherries chiefly on the young wood of the previous year.

CORDON-TRAINED TREES.—These are useful and profitable on walls and wires. For walls both upright and diagonal cordons are appropriate, Apples and Pears being chiefly cultivated. Single horizontal cordons are also grown for edgings to borders and low walls. Not much difficulty is experienced in training trees in these forms. The leading growths are allowed to extend with an occasional stopping of same to induce lateral growths to push, but this is seldom needed. The side growths are stopped at the fourth leaf, and at the winter pruning shortened to two buds. Weak laterals may remain unstopped or allowed a few more leaves, but strong growths must be early dealt with. It is important when the terminal buds of your cordon trees are fruit buds that these be removed down to the best wood bud in order to secure the desired extension.

PYRAMID TREES.—This form of training is one of the most useful for open quarters where restricted trees are necessary. They are produced by growing one shoot as a central stem, stopping it as is necessary to induce the production of side branches, which must be regulated to the proper distances from each other, stopping and thinning to keep an even distribution of wood and foliage all round the tree. The lowest branches, like those on horizontally trained trees, must be the longest and strongest if possible, and the whole thinly disposed. They are often much too crowded.

BUSH TREES.—Currants and Gooseberries being mostly grown in this form only require the branches regulating to prevent a thicket of growth choking up the centres. Gooseberries are amenable to spur-training by summer stopping, also to wall and trellis training. They bear freely, too, on the previous year's wood when that is left at full length, but it must be freely thinned to admit light and air in the summer. Red and White Currants must have the main branches thinly trained, the side shoots pinched in summer and spurred in winter. Black Currants bear on the previous year's wood only. This is encouraged to grow strongly, retaining it at full length. American Blackberries, like Raspberries, require cutting down nearly to the ground after planting, the strong growths which follow being trained to wires or stakes for fruiting the following year.

FRUIT FORCING.

VINES.—*Early Forced Vines*.—Where the Grapes are ripe fire heat will only be necessary to keep the temperature at about 60° at night, ventilating freely by day. Black Hamburgs will need slight shade, such as that of a double thickness of herring nets over the roof lights, and it will also prevent amber coloured Grapes assuming a brownish hue, detracting from their appearance. Damp the house occasionally, not allowing moisture to be condensed on the berries, but dissipate it by early ventilation. A certain amount of air moisture is necessary for the foliage, and will not injure the Grapes provided the atmosphere is not stagnant. A moderate extent of lateral growth should be encouraged, as it tends to keep the roots active and to prevent the premature ripening of the foliage, which must be kept clean and healthy as long as possible. If the principal leaves fall a prey to red spider, and there are no laterals to utilise the sap, it is probable that the axillary buds will be started prematurely. If fermenting material has been applied to the borders, part of it should now be removed, leaving sufficient for a mulch, and if the roots are active in the lower part of the material a little fresh may be placed on the surface to protect them from the atmosphere and impart a neat appearance.

Early Muscats.—It is hardly possible, and certainly not desirable, to have Muscat of Alexandria ripe before June. Black Muscat (Muscato Hamburgs) may be ripened by the end of April; but it sets its berries very indifferently at an early season, and fertilisation makes little difference, as the pistillate parts of the flower are often devoid of ovules, and cannot possibly be set. Madresfield Court cannot be classed as a Muscat in the same sense as a Muscat of Alexandria; but it forces admirably, and has some Muscat flavour, yet not always. Crops of Muscat of Alexandria started in December are now ripening, and the Vines must not lack water at the roots; examine the inside borders every week, and if moisture be necessary give it, or liquid manure liberally and warm. The temperature should be kept at 65° to 70° at night, 70° to 75° by day artificially, and through the day at 80° to 90° from sun heat. A circulation of air should be kept constantly, warm and rather dry air being necessary to perfection in Muscats. If the sun is very powerful, and the panes of glass large and clear, a single thickness of herring nets drawn over the roof will break the force of the sun, preventing scorching of the leaves and berries, which is often occasioned by the deposition of moisture on them, and the latter is a common cause of split. When the Grapes are likely to suffer through damp arising from the border much it with a little short dry material, preferably with clean dry straw coarsely chopped.

Vines Started at the New Year.—The Grapes are colouring, and need a moderate amount of air moisture to swell well, damping the house two or three times a day until the colouring approaches completion, when a drier atmosphere will be advisable; but moisture must not be entirely withdrawn, or red spider will seriously damage the foliage, and premature ripening of the leaves will be induced, the Vines starting into growth when they should be going to rest. Free ventilation should be afforded, having a little at the top of the house constantly; a circulation of warm air contributes to good finish and quality. Moisture at the roots must be furnished thoroughly; one good soaking of tepid liquid when the Grapes change colour and a mulch of partially decayed manure will generally secure sufficient moisture until the Grapes are ripe. The roots, however, must not lack water. Moisture will not injure Grapes of this class (Hamburg and Sweetwater) provided it is not deposited on the berries, and this will not occur if the ventilation is properly attended to, and a gentle warmth is maintained in the hot-water pipes. Keep the night temperature at 65°, a little more on warm and a few degrees less on cold nights, 70° to 75° by day, 80° to 90° with sun heat and full ventilation, closing at 80°, all but a small space at the top of the house.

Succession Houses.—The sun is an important factor in keeping down the coat bill. There is nothing like opening the ventilators early in the morning, admitting air in a safe quantity to pass through the house. It causes moisture to disappear, allows the foliage and fruit to warm equally with the atmosphere, preventing scorching, while elaboration begins early and is continued through the day. By closing early the crops are accelerated in swelling, provided there is a due supply of atmospheric moisture, which can be secured by damping available surfaces at closing time. Before nightfall admit a little air at the top of the house, damping with liquid manure. This chink for air saves Vines from scorching when the air-giver is not up early on sunny mornings, but the ventilation should be increased by the time the sun acts powerfully on the house. Thinning must be attended to and followed up persistently. The morning and evening is the best time for thinning—like to cultivator and the Grapes. Remove all surplus bunches. Stop or remove all laterals not required, letting those retained extend where space permits. Do not crowd the foliage, and never allow the laterals to interfere with the principal leaves, as these, to feed the buds at their base, require free exposure to light and air. Supply water or liquid manure to the borders liberally when needed, and encourage surface roots with top-dressings of superphosphate, fish guano, and blood manure. It is a good plan to mix all together, sprinkle a handful on each square yard, and wash it in. Sulphate of ammonia assists Vines needing vigour. Nitrate of soda may be used where the soil is chalky, and nitrate of potash where that substance is deficient, an ounce per square yard being sufficient for one dressing. The night temperature should be kept at 60° to 65°, 70° by day, 80° to 90° from sun heat.

Late Vines.—These are advanced for flowering, and many are in bloom. When out allow a night temperature of 70°, and 80° by day, with a free circulation of air, but not a drying current, a genial atmosphere being maintained by damping available surfaces. Brush the shy setting kinds over with a camel's-hair brush, and fertilise the bunches carefully where there is a deficiency of pollen, taking it from those that afford it freely. Up to and after flowering the night temperature should be kept at 65°, 70° to 75° by day artificially, keeping at 80° to 85° or 90° through the day, with moderate ventilation in bright weather, and abundant air when mild. Thin the bunches and berries, removing duplicate bunches unflinchingly, and reserve the most compact. Forward houses that have only been recently started, seeking advancement by sun heat, but allow a free amount of air, so as to insure sturdy growth and thick leathery leaves.

FIGS—Early Forced Trees in Pots.—When the first crop on the very early varieties—such as Early Violet, Tresfer, St. John's, and Angerique—are gathered return to the treatment applicable to trees swelling the crops. If red spider has gained a footing wash the leaves with a solution of soft soap, 2 ozs. to the gallon of water; also the wood where there is any scale, dislodging it with a brush, syringing the trees forcibly on fine evenings until new growth is being made freely, ordinarily syringing twice a day—in the morning and early afternoon.

Where the second crop is thickly set thin liberally, leaving the fruits nearest the base of the shoots, and to insure a full first crop another year be careful not to overtax the trees. Expose the fruit ripening as much as possible, and increase the ventilation. This will be the case with Brown Turkey (one of the finest Figs for forcing), and where its second crop is thickly set thin the fruits well, as there is no danger of the trees casting their fruits after this period if they are well attended to with water and nourishment. Stop the shoots and thin where crowded, for vigorous sturdy shoots produce the finest Figs.

Planted-out Trees.—The earliest started trees have the fruit approaching ripeness and must not be wetted, maintaining atmospheric moisture by keeping the mulching, walls, and paths properly moistened. Moisture can be prevented from condensing on the fruit by maintaining a steady circulation of air with gentle fire heat. Care must be taken to afford plentiful supplies of tepid liquid manure to the roots. When this is neglected the trees become infested with red spider, and as a natural consequence the ripening period is shortened, and the second crop is puny, rusty, and unsatisfactory. Allow the leading shoots to extend without stopping until they reach the extremity of the trellis, then stop them and cut them away after fruiting to make room for succeeding fruitful wood.

Late Houses.—Figs are grown very successfully in unheated houses, producing one crop, which affords an acceptable supply of fruit in August and September. The trees, notwithstanding last season's cold and the ungenial spring, are showing plenty of fruit. With the roots confined to moderate space within the house, the border concreted and thoroughly drained with broken bricks and old lime rubbish, they should have very copious supplies of water, and be syringed twice a day. In cloudy weather, however, the afternoon syringing should be dispensed with, and in bright weather it may be performed early with all the sun heat that can be shut in to insure the proper drying of the foliage before nightfall. The young growths in these structures should be trained a good distance apart, every growth having full exposure to light and air so as to insure sturdy fruitful wood.

THE BEE-KEEPER.

APIARIAN NOTES.

TWO QUEENS IN ONE HIVE.

"I ENCLOSE two cuttings from the *Gardener's Chronicle*. Is the idea a new one? I take the deepest interest in bee news, and should like your opinion about "Two Queens in one Hive" through the *Journal of Horticulture*. I have been much interested in the discussion between you and Mr. Hooker, and see you have got the best of the argument."

For a week previous to receiving the above letter, which I enclose with the cuttings, I had contemplated referring to the subject, on which I have had numerous inquiries of late. I have also read nearly five columns in a small bee paper describing the admirable system of managing bees as carried out by Mr. Wells for "two seasons," as if that system was new. Mr. Wells, however, appears to describe it as "not altogether new in principle." Possibly he and the editor of the bee paper may have read something about it before, and whether they have or not I ask to have reproduced what I wrote in the *Journal of Horticulture* in 1889, and endeavoured to give honour to whom it was due.

DOUBLING HIVES.

The word "doubling" here has a special, not general, meaning. It is a system of bee-keeping well adapted to our variable climate, but is not carried out as it might be owing to its not being generally known amongst bee-keepers. The system consists in dividing a strong hive after the honey season is past, introducing a young queen to a portion of the combs, and separating the newly created colony from the old ones by a close-fitting dividing board, if the hive is a one-story frame hive. If a storifying one, then it should be divided. They should be placed close to each other, and wrapped up as one hive. The entrances must be at the extreme ends from one another with a division between the two, both looking in the direction most suitable for the flight of the bees.

Both lots of bees being well supplied with all the necessities of life and for breeding will start with vigour in the early spring. The portion containing the young queen will be the foundation for the main hive in summer, and will be found to be most forward. Attention must be paid to it, so that it does not suffer from want of anything, particularly room. By the end of May or beginning of June, or, if the season is early and mild, the middle of May, the work of brood-spreading should be begun in earnest. The combs containing brood and young bees may now be taken from the old queen and given gradually to the young one. Care must, however, be taken to dislodge the old bees if there are any on the comb. A few taps with the finger on the frame will cause them to leave it, when it may be given with safety to the other portion. Or, if

desirable, the old queen may be deposed, and after a few days bees and comb may be given, if a little precaution is used, to the other. The hive will now be of enormous strength, and with a young queen and plenty of room will not swarm readily, but supering must be attended to, and in a judicious manner, storying one above another as each division is well begun, until as many are on as the bees can fill.

There is no system of bee-keeping that will so well repay the bee-keeper, or give so much satisfaction and pleasure, as this, and every bee-keeper will do well to set apart a portion of his hives to be treated on this principle; moreover, it gives a security against loss of queens. Such hives may consume 15 lbs. more honey, but they will give a large harvest in some seasons, when hives managed otherwise would give nothing, and perhaps in good seasons a triple yield to that of others. It is by no means a new system of management, nor is it to be confounded with what is known as the management of the twin hive system. It may be termed the Baird system, because Mr. Wm. Baird, Carron Lodge, near Falkirk, has practised it successfully for thirty-four years.

After a perusal of the above with what has appeared recently in our contemporaries even experts will find it a little difficult to discover much that differs from this description published four years ago. I invented the close-fitting dividing board forty years ago, without which the system under notice could not be carried out, and I gave instructions how to unite with perforated divisions long previous to 1889, so it will be observed there is nothing new about the wonderful system that seems to have been lately discovered for revolutionising bee-keeping. I exhibited hives in 1875 fitted with all the arrangements for carrying out the system, but the experience of the Judges did not enable them to appreciate its advantages. Had the plan originated with others and then appeared in this Journal as "new" we should have heard about it, and we shall now see whether its origin will be acknowledged outside these columns.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Dicksons, Limited, The Nurseries, Chester.—*Bedding and Border Plants, Dahlias, and New Roses.*

Mr. H. J. Jones, Ryecroft Nursery, Lewisham.—*New and Choice Plants.*

Messrs. F. Rosher & Co., Old Jamaica Wharf, Upper Ground Street, London, S.E.—*Garden Requisites.*



* All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Crystal Palace Shows (*T. Haywards Heath*).—The date of the National Rose Society's Show at the Crystal Palace is July 2nd. If you want a full list of the exhibitions there no doubt Mr. Head would furnish you with one if you wrote to him. His address is Crystal Palace, Sydenham, S.E.

Dust from Engine Flues (*G. D.*).—The "soot" resulting from coke is simply ash, and principally consists of iron and alumina. The value of soot mainly comes through the organic matter which may exist to some extent in the reddish-grey dust, but it is much inferior to wood ashes for fertilising purposes.

Fresh Lime and Farmyard Manure (*H. M.*).—It is not "a good practice in preparing the ground for any kind of crops to mix and dig into the ground at the same time fresh lime and farmyard dung;" but on the contrary a wasteful proceeding, as the lime causes too rapid decomposition of the organic matter, and the rains wash it away—that is, the soluble matter, and the crops do not derive the benefit they would from the farmyard manure by the ordinary process of decomposition, and retention by the soil till utilised by the crops.

Wallflowers (*D. X.*).—By far the best mode of raising a number of single Wallflowers is to sow the seed now in an open position, and eventually plant the seedlings a foot apart in firm and not too rich soil. Wallflower seed is often sown too late, and the plants have not time to become strong. We sowed a fortnight ago, and the seedlings are now appearing. The semi-double German varieties are also raised from seed, but the true doubles must be increased from cuttings. They strike readily when the shoots are tender in moderate heat, the same as Verbenas are propagated, or rather firmer shoots may be inserted under handlights in June. Any favourite single varieties must also be perpetuated by cuttings, as there is no certainty that seed gathered from any particular plant will produce flowers like the parent.

Commercial Gardening (*Adam*).—You tell us what you wish, but nothing about yourself. If you are young, strong, and willing to work hard, often for many hours, in a good market garden, that would probably be the best of the three courses indicated in your letter to pursue. Some of the leading market gardeners prefer to pay wages, and the students are expected to earn them by doing whatever work is in progress, whether it be rough or smooth, with ordinary men or women workers. Possibly there may be some establishments where students are admitted under special conditions, but we do not know them, nor can we give introductions. Probably it would not be less difficult to get into a market garden than into the experimental garden you name at the present time. We suspect the realisations of some "students in horticulture" will not equal their anticipations.

Figs Spotted (*J. J. C.*).—The fruit is affected with "spot," which is caused by a fungus, *Glœosporium lœticolor*, and accelerated by an excess of moisture, or water resting on the fruit, which prejudicially affects the epidermal and underlying tissues. It produces an abnormal growth in the fruit, causing it to swell and become considerably larger than the unattacked fruit, but only to prematurely ripen and decay. Such fruits are unwholesome, if not positively injurious—poisonous. The fungus is found on many other fruits, usually attacking them when about half ripe or just before commencing to ripen. The fungus has pushed its mycelium into the reproductive part of the fruit, which has not been fully fertilised; but that is not the cause of the infestation, for Figs rarely produce fertile seeds in this country, and the fungus has no connection with smut, which attacks and destroys the reproductive parts of Figs, converting them into black dust. There is no remedy but to apply such manures or substances as will strengthen the epidermis, fortifying that with silica and lime. Pick and burn the infested fruit, and maintain a drier atmosphere, not wetting the fruit, and avoid a close atmosphere. The deposition of moisture on the fruit favours the fungus, for moisture it must have for germination.

Caterpillars Infesting Gooseberries and Currants (*W. C. Inch*).—These are certainly individuals of the too-familiar foe called *Abraxas grossulariæ*, but of a darker colour than usual, apparently a local variety; but it has been noticed that the caterpillars of this moth are generally of a deeper hue when they feed on the Sloe or Black Currant, perhaps from the astringent matter in the leaves which is digested by them. It is the fact, apart from the presence of numbers, that a common garden pest seems sometimes to do much more harm than it does at other times to the plants or shrubs it frequents, and various explanations have been given of this. The species, as a rule, is more partial to the Black Currant than to the Red. Syringing the bushes with some of the poisonous compounds, such as Paris green, have been found to destroy this caterpillar, and hand-picking or shaking the bushes will clear off many of them. Miss Ormerod, who is an authority on these matters, recommends dusting with sulphur or lime while the dew is on the bushes, also syringing with Gishurst compound, or with a weak solution of alum, which is fatal to most.

Soil for Figs (*Pater*).—Almost any well-drained soil will suit Fig trees, provided that, with its porosity, it also possesses that kind of mechanical texture which, whilst it readily transmits moisture, will also retain sufficient to withstand a hot and dry period in the middle of summer. It is well, however, to lean towards an open porous character; for if any defect arises through extreme seasons of drought in consequence of the soil being light, a remedy of a very simple character is always at hand in the shape of a good top-dressing and a bucket or two of water. In preference, therefore, to building preventive walls and other matters involving extra expense, we say, So compound the soil for them that they may never grow very gross nor be liable to suffer from sudden droughts. When the native soil of a garden is too clayey, thorough drainage and the introduction of a liberal amount of sand, lime rubbish, and ashes, with a slight amount of vegetable matter, will in general suffice to make it fit for Fig trees. If the garden soil is too light and porous some adhesive loam may be added, or indeed, anything which may happen to be at hand which is retentive of moisture in its own nature, yet not a "forcing" or rich manure. One thing is requisite: the bed of soil should by no means be deep. We would never allow above half a yard in depth, unless in situations peculiarly favourable to the culture of this fruit.

Insect on Peach Trees (*X. Y. Z.*).—The large roundish pest on the Peach shoot is Filbert scale (*Lecanium hemisphericum*), and is abundant on Oaks in America, less so in this country on American species of *Quercus*, and it sometimes infests fruit trees, including Apricots. Your case is the first we have seen on Peach tree growths.

Its nature is to fix itself (the female) by its beak pushed into the bark, and by that means abstract the sap for its nourishment; and once fixed it never moves, but in due course deposits eggs, which hatch, and the young are protected by the "scale" (that not being the insect, but its covering, as the shell is to the snail), which shrieks as the parent ages and dies, and sets the young scale free. The insects not only impair the health of the tree by extracting the sap, but their secretions clog the pores of the leaves, shoots, and fruit; they also become food for a fungus, which reproduces itself by an immense number of spores, those being the black deposit on the affected part. The scale is difficult to dislodge when the tree is in foliage and fruit, but you may try the following:—Softsoap 1½ lb., boiling water 1½ gallon, and petroleum 1 gill. Dissolve the softsoap by stirring, add the petroleum, churn violently with a force pump as used for spraying until a cream is formed, then add 10½ gallons of hot water; thoroughly mix, and apply in the evening to the infested tree, as hot as the hand can be borne in the solution one minute, with a syringe, but spraying is more effectual and economical. Repeat, if necessary, in two or three days, thoroughly cleansing the tree by forcible syringings with clear water.

Aubrietias (S. C.).—When large numbers are required for spring bedding the simplest method is to raise them from seed. We have raised thousands in this manner; and although all the varieties were not precisely alike in the size of the flowers and habit of the plants, the diversity was not so great as to be any serious obstacle to the plants being employed in lines or masses, while when grown in isolated places in borders and on rockeries the variations are acceptable rather than otherwise. The plants cannot be raised too early now. We should sow the seed in boxes, to be placed in heat and covered with squares of glass, keeping the soil constantly moist. When the seedlings are large enough transplant them 6 inches apart in rows 1 foot asunder in good soil and a sheltered position, and with care in watering as needed, and stirring the soil frequently, good plants will be had in October for planting where they are required to flower.

Poor and "Dirty" Land (W. P.).—You say the soil is "so poor and light (sandy) that it will not grow anything satisfactorily;" also, "so dirty" (with weeds, we presume) "that it is not worth cropping." Yet you ask what sort of a crop to sow and grow that it may be turned in in the autumn to clean and manure the land. You evidently think something will grow after all, though we do not know of anything that will do what you expect—clean the land and manure it usefully. No crop cleans land better than strong-growing Potatoes, and we should be surprised if we could not obtain a crop of Imperator from it that would defray the cost of cultivation. This is probably the best Potato for poor soil, and we have seen good crops in sand which rose in clouds under strong wind. A mixture of superphosphate of lime and nitrate of soda, two parts of the former and one of the latter, was scattered in the drills with the sets at the rate of a handful in a length of 7 or 8 yards, and a further dressing of nitrate of soda given alone when the plants appeared at the rate of 2 cwt. per acre. There is still time for planting. We know of acres of land once "so poor and dirty" that one tenant did not think it "worth cropping" and left in a waste, but his successor has obtained crops of Potatoes from it which he has sold for more than £20 an acre. He took particular care, however, to keep down weeds early in the season, knowing it would not pay him to purchase fertilisers for their support. You will never render the land sufficiently fertile to grow useful crops by the methods you propose. If you choose to let it go wild you might perhaps grow chickens.

Names of Fruits.—Notice.—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (P. A. M.).—The Apple you have sent from the Cape is Queen Caroline, also known as Spencer's Favourite. It is a good specimen of a good variety, rather more highly coloured than home grown fruit.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (Lady K.).—*Alyssum saxatile*. (C. P.).—1, A fine form of *Dendrobium nobile*; 2, *D. marmoratum*; 3, *D. densiflorum*. The Orchid sent with your previous letter was *Epidendrum Parkinsonianum*. (A. McD.)—1 is *Pimelea spectabilis*, the other specimen is insufficient. (E. H. L.).—1, *Boronia heterophylla*; 2, *Cytisus præcox*; 3, *Lycaste Skinneri*; 4, *Odontoglossum Pescatorei* var.; 5, *Odontoglossum citreolum*; 6, *Odontoglossum Rossi majus*. We do not name more than six specimens at one time.

COVENT GARDEN MARKET.—APRIL 11TH.

BUSINESS improving, but prices remain unaltered.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, 1-sieve	1	0	to	5	0	Grapes, New, per lb. ..	3	6	to 4	0	
Apples, Canada and Nova Scotia, per barrel	12	0		20	0	Lemons, case	10	0		15	0
Apples, Tasmanian, per case	7	0		12	0	Oranges, per 100 ..	4	0		9	0
						St. Michael Pines, each ..	3	0		6	0
						Strawberries, per lb. ..	1	0		4	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb. ..	0	9	to	1	0	Mustard and Cress, punnet	0	2	to 0	0	
Beet, Red, dozen	1	0		0	0	Onions, bunch	0	3		0	5
Carrots, bunch	0	4		0	0	Parsley, dozen bunches ..	2	0		3	0
Cauliflowers, dozen ..	2	0		3	0	Parsnips, dozen	1	0		0	0
Celery, bundle	1	0		1	3	Potatoes, per cwt. ..	2	0		3	0
Coleworts, dozen bunches	2	0		4	0	Salsify, bundle	1	0		1	6
Cucumbers, dozen	2	6		4	6	Scorzonera, bundle ..	1	6		0	0
Endive, dozen	1	3		1	6	Seakale, per basket ..	1	6		1	9
Herbs, bunch	0	3		0	0	Shallots, per lb. ..	0	3		0	0
Leeks, bunch	0	2		0	0	Spinach, bushel ..	3	0		3	6
Lettuce, dozen	1	3		1	9	Tomatoes, per lb. ..	0	4		2	0
Mushrooms, punnet ..	1	6		2	0	Turnips, bunch	0	0		0	4

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.									
	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	2	0	to	4	0	Maidenhair Fern, dozen bunches	4	0	to 8 0
Bluebells, dozen bunches ..	0	9		1	0	Mignonette, 12 bunches ..	2	0	6 0
Bouvardias, bunch	0	6		1	0	Narciss (various), Scilly dozen bunches.. ..	2	0	4 0
Carnations, 12 blooms ..	1	0		3	0	Paeonies, dozen blooms ..	1	0	2 0
Carnations, Malmaison, 12 blooms	2	0		6	0	Pansies, dozen bunches ..	1	0	2 0
Cineraria, dozen bunches..	6	0		9	0	Pelargoniums, 12 bunches	6	0	9 0
Cowslip, dozen bunches ..	1	0		1	6	" scarlet, 12 bunches	4	0	6 0
Daffodils (double), dozen bunches	2	0		4	0	Polyanthus, dozen bunches	1	0	2 0
Daffodils (single), doz. bunch.	1	6		6	0	Primroses, dozen bunches	0	6	0 9
Eucharis, dozen	4	0		6	0	Primula (double) 12 sprays	0	6	0 9
Euphorbia jacquiniæflora dozen sprays	2	0		3	0	Roses (indoor), dozen ..	1	0	2 0
Freesia, dozen bunches ..	2	0		4	0	" Red, per doz. blooms..	2	0	4 0
Gardenias, per dozen ..	1	6		4	0	" Tea, white, dozen ..	1	0	3 0
Hyacinths, dozen spikes ..	1	0		2	0	" Yellow, dozen	2	0	6 0
" Dutch, per box ..	1	6		4	0	Spiræa, dozen bunches ..	4	0	6 0
Lilium longiflorum 12 blooms	2	6		4	0	Tuberose, 12 blooms ..	1	0	2 0
Lilium (various) dozen blooms	1	0		3	0	Tulips, dozen blooms..	0	6	1 0
Lily of Valley, doz. sprays	0	6		0	10	White Lilac (French) per bunch.. ..	4	0	5 0
" doz. bunchs. ..	4	0		12	0	Violet Parme, per bunch	2	6	3 6
Marguerites, 12 bunches ..	3	0		4	0	Violet, English, doz. bunch.	1	0	1 6
						Wallflowers, dozen bunches	2	0	4 0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Genista, per dozen	6	0	to 10	0	
Arum Lilies, per dozen ..	6	0		9	0	Geraniums, Ivy	6	0		9	0
Azalea, per plant	2	0		3	0	Lilac, each	2	0		3	6
Calceolarias, per dozen ..	6	0		9	0	Lily of the Valley, per pot	1	0		1	6
Cineraria, per dozen ..	4	0		8	0	Lobelia, per dozen	6	0		8	0
Cupressus, large plants, each	3	0		5	0	Lycopodiums, per dozen ..	3	0		4	0
Dracæna terminalis, dozen	12	0		42	0	Marguerite Daisy, dozen ..	6	0		12	0
" viridis, dozen ..	12	0		24	0	Mignonette, per dozen ..	6	0		10	0
Erica various, per dozen ..	12	0		24	0	Musk, per dozen	3	0		6	0
" Willmoreana, dozen	12	0		18	0	Myrtles, dozen	6	0		9	0
Euonymus, var., dozen ..	6	0		18	0	Palms, in var., each ..	1	0		15	0
Evergreens, in var., dozen	6	0		24	0	" (specimens)	21	0		63	0
Ferns, in variety, dozen ..	4	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
" (small) per hundred	8	0		12	0	" per dozen ..	9	0		18	0
Ficus elastica, each	1	6		5	0	Rhodanthes, per dozen ..	6	0		8	0
Foliage plants, var., each ..	2	0		10	0	Saxifraga pyramidalis ..	1	6		2	0
Fuchsia, per dozen	6	0		12	0	Spiræa, per dozen	8	0		12	0

Bedding Plants in variety in pots and in boxes.



THE LAMBING SEASON.

A COLD wet summer, followed by a wet autumn and a long hard winter, proved a severe trial for sheep of all kinds. The strain upon ewes was exceptionally severe, but under good management they passed through the long spell of ungenial weather wonderfully well, the best proof of this being found in the large number and excellent condition of the lambs. It may be stated that last September, and ever since, the ewes had a liberal allowance of trough food, to which, as the weather became very cold, a regular supply of fodder in racks was added. This use of dry food so early in autumn was essential owing to herbage being so poor, notwithstanding its abundance. There was very

little nourishment in the cold wet grass then. Sheep having nothing else to eat lost flesh, and subsequently suffered more from cold than those which had a regular allowance of trough food.

It is precisely in such adverse seasons that management tells. Good results never did nor never will follow a strict adherence to line and rule. Exposure to cold and wet invariably tells upon condition; dietary must be ruled by weather, and that wise maxim which tells us prevention is better than cure. Many a farmer left his ewes to take their chance upon pasture till a few weeks before lambing time, then finding them so weak that it was doubtful if they would survive the lambing season, recourse was had to a daily ration of crushed linseed cake, and after its use for two or three weeks we positively heard complaints of the little good it seemed to do the sorely tried animals. No doubt it strengthened them; more than this was hardly possible in ewes heavy with lamb. Three facts strike one in connection with this matter—*i.e.*, the common ignorance of animal dietaries, of the low quality of pasture herbage in autumn and winter, and of the harm arising from undue exposure in cold and wet. The curious part of it is how such exposure appears to be taken as a matter of course. Here is an instance of it taken from a recent flock report in the *Live Stock Journal*, where the owner of a flock of Leicesters says that he had two ewes starved to death, and several others which never recovered from the continuance of wet weather followed by bare frosts, the sheep being in folds of wet mud and water for weeks; then the white-fleshed Turnips that remained after the first frost broke up were nearly all rotten, which accounts for the large quantity of lambs that were born dead or cast prematurely. The lambing began in the last week of February. Of the first six ewes that lambed only three lambs were alive, several ewes died from weakness, twenty-seven in all, and thirty-two ewes either cast their lambs or were barren. The owner terms this "bad luck." Would he be surprised to hear it termed bad management?

Very different to this is the report of a flock of Border Leicesters, which tells of ewes very healthy, of lambs looking well, of the loss of only one ewe and a few lambs, and of the mixture of Oats, bran, and Peas given to the ewes twice a day; or of a flock of 200 Southdowns having 106 pairs of twins, with the lambs strong, healthy, and doing well. No losses are mentioned, and the satisfactory condition of the flock is explained by the abundance of sound food. Swedes not yet finished, a splendid field of Thousand headed Kale to follow, with the Sutton's Mixture for Early Sheep Feed well forward, and upwards of 700 tons of Mangolds in good condition. Accounts of some flocks of Kent ewes are excellent, the lambs having come strong and healthy, with nearly half twins. Shropshires are not so satisfactory, the cause being evidently improper or insufficient food, and a want of shelter for young lambs.

Two serious extremes noticeable again this season were the keeping of ewes in wet muddy folds, and the scarcity of food on grass farms. The former invariably leads to abortion and losses among the ewes, also inducing much foot rot: the latter shows the folly of laying down all the land of a farm to grass, and of not making at least part of the hay crop into silage. The great thing is to have plenty of sound trough food, not necessarily of an expensive sort. For many a season our ewes have had no hay: chaffed Barley and Oat straw, with an addition of crushed corn when necessary, is generally sufficient, with Pea or Oat straw in the racks, and some rock salt always in the troughs. With a supply of home-grown corn cake bills are avoided; but it must be owned that some lamb food is used, both for ewes and lambs when folding begins; till then sweet chaffed straw is the principal thing. The ewes take kindly to this with very little trouble, an addition of crushed corn or meal being promptly made when necessary. It is mere absurdity to treat sheep in a similar manner in all weather; rather should

our treatment be tentative and otherwise intelligent. The long spell of low prices has told upon trade: we should try and meet it by getting the hoggets off our hands as early as possible. This can only be done profitably by pushing them on from the first; we are then able to breed from lamb ewes the first season, and to dispose of the hoggets just when we have done with them in folds, or when a favourable turn of markets invites a prompt sale. Depend upon it the old process of keeping hoggets till nearly two years old has ceased to be profitable; in proof of this we shall have something to say about the frozen meat trade another week.

WORK ON THE HOME FARM.

Though the nights continued so cold right up to the end of April, occasional showers alternating with bright sunshine have brought a full plant of all spring crops well above the surface. Weeds are growing too, so hoeing and rolling must have prompt attention now and for the next two or three weeks. May came in showery, and this, the third day of the month, has been a downright wet day; and very welcome it is too, not only as a harbinger of warmer weather, but as certain to dissolve and wash into the surface the chemical manure sown broadcast upon winter corn. Much of the spring corn had manure drilled in with it, the quantity per acre being governed by the condition of the land. Oats had a full dressing, but to much of the Barley only a moderate dressing was given, our aim being the development of a fine, bold malting sample, without having the straw so vigorous as to become lodged by the first storm after it is fully grown. This is a nice point, requiring discrimination and full knowledge of the actual condition of the soil in each field of the home farm. As we have explained repeatedly, sustained fertility in the soil by sheep folding, by ploughing in leguminous crops, or by a judicious use of chemical manures, renders us practically independent of crop rotation. Corn follows corn in the same field year after year, the only question in the matter being one of convenience, and a four-course, or any other precise shift, is obviously obsolete now that our practice is so little affected by the influence of one crop upon another. The only sensible rotation work with which we are now acquainted is that of Scotch dairy farmers in Essex, who plough and sow a five or six-years layer annually; the ploughed-in layer to have a corn crop at once, for those shrewd, intelligent men will have nothing to do with fallows of any kind. They believe in heavy manure dressings, thorough and most careful ploughing, and such thick seeding that weeds have no chance of becoming established in their land; and they would be apt to regard a man attempting to expound to them the merits of a four-course shift or of fallows as a veritable Rip Van Winkle who had slept through at least one generation of farmers.

As green food comes into use horses and cows are narrowly watched, as there is much difference among animals in their reception of a change of diet. Most horses consume green food greedily, but some do not, and if left to careless carters they are half starved. Avoid the general use of whole corn among stock; all animals eat it readily enough, but all cannot assimilate it. Old horses especially cannot do so, yet we frequently find it being used for them in the most heedless manner.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
		Barometer at 32° and Sea Level.	Hygrometer.		Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.		Max.	Min.	In Sun.	On Grass.	
1892.										
May.										
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.
Sunday	.. 1	30.099	51.2	41.1	N.E.	43.1	59.2	33.4	78.9	26.0
Monday	.. 2	29.832	47.8	43.9	N.E.	45.9	49.3	37.4	65.0	27.2
Tuesday	.. 3	29.706	44.4	42.2	N.E.	45.4	46.9	41.9	69.0	40.0
Wednesday	4	29.762	45.0	44.2	N.E.	45.7	49.1	43.2	76.9	39.1
Thursday	.. 5	29.989	45.0	44.2	N.	45.0	49.0	37.1	87.3	30.1
Friday	.. 6	30.153	45.3	34.9	N.	44.1	52.9	33.9	102.1	28.0
Saturday	.. 7	30.241	46.7	39.7	W.	44.9	63.0	28.4	103.3	23.1
		29.968	46.5	41.5		45.3	52.8	36.5	83.2	30.5
										0.161

REMARKS.

- 1st.—Bright sunshine till 10 30 A.M., then hazy and thick, and at times dark with smoke fog.
 - 2nd.—Dull and drizzly morning, showery afternoon and evening.
 - 3rd.—Overcast all day, almost continuous rain or drizzle in morning.
 - 4th.—Wet till 10 A.M., then overcast.
 - 5th.—Brilliant early, cloudy after 10 A.M.
 - 6th.—Sunny almost throughout, but spots of rain about 11 A.M.
 - 7th.—Brilliant all day.
- A cool and rather cloudy week; temperature about 5° below the average—
G. J. SYMONS.



AFTER having secured a good set of Grapes good cultivators are anxious to begin the tedious but enjoyable operation of thinning the berries. They know well that an early start is necessary for two reasons—one is that the energy of the Vine is thus concentrated in the berries left and does much towards enabling them to attain to the largest possible size. The other reason is that unless the work is begun in good time it is a most difficult matter to keep it under, consequently many bunches do not get thinned till the berries press against each other. The operator then has the not very consoling reflection of knowing that the berries he is cutting out represent so much “wasted force,” and, moreover, the work of thinning cannot be done so quickly or so well as if it had been commenced several days sooner.

Those in charge of a number of vineries generally find it necessary to work both early and late when the bulk of Grape thinning requires attention. The work is more pleasantly performed in early morning and during the evening than during the day, especially in sunny weather; but, independently of that consideration, gardeners have often so many things requiring attention at the present time, that they find it impossible to keep the work under by working during the regular hours only; and, although for their extended labour they deserve additional remuneration, they have generally to be content with the satisfaction of knowing the work was done at the right time; and it is well that this knowledge gives to the good cultivator a great amount of genuine pleasure.

Before commencing to thin the berries each Vine should have the superfluous bunches cut off, so that those retained may be distributed as evenly as possible over the whole surface. This not only adds to the appearance of the house when the fruit approaches maturity, but also enables the Vines to perfect a greater weight of fruit than they are able to do when cropped heavily in some parts and lightly in others. In selecting the bunches it should be borne in mind that it is not always the largest that are the best. Those of good shape, short in the shoulder, with even berries, are preferable to larger examples which have only mere size to recommend them; but if they have the good qualities already defined, the larger they are the better. It is always a difficult matter to determine exactly the weight of crop each Vine will perfect. The health and vigour of Vines must be taken into consideration. Generally 1 lb. of fruit to every foot run of rod is a safe crop to leave on Vines in good condition, but many cultivators leave considerably more, and with the aid of high feeding finish the fruit perfectly.

Medium-sized compact bunches seldom require the shoulders to be tied up, but others of larger proportions are much improved by the practice. Long shoulders will require two or three ties each to keep them in position and prevent the stems from being cut by the weight of the berries as they increase in size. This part of the work being done thinning the berries should commence. While doing this the bunches may be steadied with a smooth thin stick held in one hand, while the other deftly guides the scissors in cutting out the berries. Commence by thinning those at the base of the bunch freely; two-thirds generally require cutting out; those retained should be as even in size as possible. It will generally be found that the central berry of each small cluster is

best, and the only one necessary to leave in the lower part of the bunch. As the thinner approaches the top they should be left closer together, as the berries of those varieties with long footstalks force each other upward and outward as they increase in size, and thus fill up the shoulders.

A very frequent mistake made in thinning bunches with long footstalks is to cut out too many berries near the top. When this is done the bunches often look very well while hanging on the Vines, but when cut and placed on the exhibition board or the dessert dish, instead of retaining their form the shoulders spread out in consequence of their want of solidity. The aim of the thinner should be to allow every berry just room to fully develop, and yet form a solid mass when cut. To be able to accomplish this a knowledge of each variety is necessary, as not only do they vary to a great extent in size of berry, but the footstalks also differ in length and stiffness, and they must, therefore, be dealt with accordingly.

Muscat Hamburgh, Muscat of Alexandria, and Mrs. Pince frequently produce many stoneless berries. These should not be thinned quite so early as most other varieties; if left till the berries are about the size of marrow Peas it is not difficult to see which are likely to swell freely. The small berries should be first cut out, and the others thinned to form compact bunches. If gaps occur in any part the berries around should be left a little closer, and the chances are they will quite fill up the blanks by the time the Grapes are ripe. Black Hamburgh invariably sets well, and ought to be thinned freely at the base of the bunch, but scarcely any require removal from the shoulders, except in the case of very compact bunches.

Gros Colman and Gros Maroc both produce very large berries, yet they require different treatment when thinning. The first named has short sturdy footstalks, and the berries are produced freely on the shoulders. Bunches growing on strong Vines not heavily cropped ought to have the berries thinned to $1\frac{1}{4}$ inch apart, in fact this grand Grape requires thinning more freely than any other variety. Gros Maroc requires thinning nearly as much at the point of the bunches, but the top should be sparingly thinned, as it is a frequent occurrence to see this variety with loose shoulders, as the footstalks are long at that part. Foster's Seedling, though not usually producing very large berries, still requires thinning freely, the footstalks being short, and the berries generally very plentiful. Buckland Sweetwater, as a rule, should have less thinning than any Grape I am acquainted with, and rarely requires any but the stoneless berries to be taken out. Large bunches of Gros Guillaume also need but little thinning, but much attention ought to be given to tying up all the shoulders, and every cluster containing four or five berries. If treated in this way bunches which appear loose and ungainly develop into grand solid specimens.

Madresfield Court should have nearly all the berries removed from the centre of the bunch, as they rarely have room to develop, and are dangerous if cracking should take place, because they cannot easily be noticed till decay begins. Although the berries of this fine Grape swell to a very large size, those forming the outline of the bunch do not require such severe thinning as many might think, because they are long and tapering rather than great in diameter. Trebbiano often produces very large bunches with loose shoulders. These may be much improved in shape by crossing them at the top, and in some cases coiling them around the footstalk of the bunch. I once saw some grand examples staged at the Crystal Palace Show, which I found on close inspection had been so treated. They were perfect models in form and of a fine clear colour. Golden Queen is a good setter, produces very fine berries, and should be thinned freely. Alicante and Lady Downe's ought to be thinned to about an inch apart, as the stems are short and sturdy and do not lengthen out.

—H. DUNKIN.

SOME USEFUL GREENHOUSE CLIMBERS.

WITHOUT climbers a lofty greenhouse or conservatory is like a picture without a frame—it needs furnishing. This fact, no doubt, will be admitted by all who are responsible for the embellishment of such structures, and yet it cannot be said that all of them are so well supplied with climbing plants as they should be. Nothing enhances the appearance of a conservatory more than the judicious use of climbers, and the same applies, though in a less degree, to the humbler greenhouse, which in many gardens has to do duty as a so-called "show house." It will thus be seen that the matter is of more importance than it appears to be on the surface, and gardeners should give it greater attention where hitherto it has been neglected. There are, as is generally well known, plenty of climbing plants suitable for growing in all kinds of structures, and therefore there should be no difficulty in making a judicious selection. In furnishing a structure with climbers the aim should be to select such kinds as will insure a continued display of bloom as long as possible, though in many cases this point seems to be entirely ignored. Too often a conservatory is gay with climbing plants one week and the next is devoid of flowers, so far as the roof is concerned. Where Roses alone are grown this result is most conspicuous, and therefore it would be well to grow some other plants in conjunction with them to prolong the display.

At the present time *Bougainvillea speciosa* is flowering profusely in a lofty greenhouse of my acquaintance, the long shoots being covered with mauve-coloured flowers. This is a charming species, and, in my opinion, much more effective than *B. glabra*, which is better suited for a stove or intermediate house. I remember seeing a fine specimen of the former in a large greenhouse at Sandbeck Park, Rotherham, some years ago, and during May and June it formed quite a picture. The flowers were produced on shoots fully 4 feet in length, which covered the greater portion of the roof. After flowering these shoots were cut back to within a few inches of the main stems that were trained up the rafters, and fresh growths encouraged, the latter blooming the following year. But perhaps Mr. Summers will give readers of "Our Journal" the benefit of his experience with this charming climber.

Lapagerias are indispensable in lofty structures, though they are not so well adapted for smaller houses. They are undoubtedly seen to the greatest advantage, as indeed are all similar plants, when hanging loosely from the roof. Beyond what is really necessary to secure the main branches, no tying or training should be practised with Lapagerias. According to my experience the white form, *L. alba*, is not such a vigorous grower as *L. rosea*, especially in a mixed house. When once established, however, it will make good growth, and should be given a place in every conservatory, the pure white waxy flowers being so useful for cutting. The Nash Court variety of *L. rosea*, sent out some years since by Messrs. Laing & Sons, is a decided improvement on the type, and should be grown in preference to the latter. The flowers are larger, of a better colour, and are produced in immense quantities. The plant, moreover, is a most vigorous grower. Many fail with Lapagerias owing to injudicious watering. During the summer they require an unlimited supply, and if growing in borders, as they generally are, it frequently happens that the greater portion of the roots do not get any water. Those who have failed with Lapagerias hitherto will do well to bear this in mind during the coming summer. Good drainage is also essential.

Many of the Passifloras are excellent greenhouse climbers, but, like the Lapagerias, show their beauty best in a lofty structure. In small houses Passifloras often take up more room than they are worth. For unheated structures, or those from which frost is only just excluded, the white variety *Constance Elliot* is well worth growing, though where more heat is forthcoming some of the choicer forms are preferable. *Eynsford Gem*, a variety sent out by Messrs. Cannell a year or two ago, is very showy with its reddish flowers, and it is, moreover, well nigh a perpetual bloomer. The edible Passion Flower (*Passiflora edulis*) makes luxuriant growth, and in addition to its charming flowers these produce, when fertilised, a crop of very fine fruits which are esteemed for dessert. There are many more Passifloras that are deserving of notice, and which might be grown with advantage where space permits. They all require liberal treatment, though are generally the most floriferous when the roots are confined.

Of Clematises, the popular *C. indivisa lobata* is undoubtedly the most useful. There are many which produce larger and more showy flowers individually, but for effect this variety can hold its own. The flowers, as is well known, are small, pure white, and very sweet. These are produced in great profusion, and a well-grown specimen is highly effective during the spring months. Not being a particularly vigorous grower, this Clematis might advantageously be grown in small greenhouses, such as are gene-

rally found in amateurs' gardens, and it will not fail to give satisfaction. When other kinds are preferred the beautiful Duchess of Edinburgh of the Florida section is well worth growing. This is a semi-double, the flowers being remarkably fine and pure white. Altogether it is one of the most delightful Clematises I have seen. Miss Bateman, too, with large delicately coloured flowers is worthy of a place in every greenhouse.

The Jasmines are also worth considering, the sweet-scented flowers being, as a rule, much appreciated. The same may be said of *Bignonia venusta*, which makes a charming display when covered with trusses of flowers of a rich orange-red colour. This is an old favourite, though by no means extensively cultivated in modern gardens. As a pillar plant it is very effective, as is *Habrothamnus elegans*. For covering the back wall of a greenhouse *Plumbago capensis* is admirably adapted, and it yields a profusion of pale blue flowers all through the summer and autumn months. *Clianthus magnificus*, when well grown, is showy with its brilliant scarlet flowers. *Cobœa scandens variegata* and *Maurandya Barclayana* are pleasing in appropriate positions, while for winter and spring flowering few plants are more useful or more easily grown than the best varieties of *Tropæolum Lobbianum*, all of which bloom most profusely in a greenhouse.—NOMAD.



ONCIDIUMS AND MILTONIAS.

IN part 8 of their "Manual of Orchidaceous Plants," to the issue of which we recently referred, Messrs. J. Veitch & Sons deal with the genera *Oncidium*, *Miltonia*, *Ada*, *Brassia*, *Gomeza*, *Ionopsis*, and *Ornithocephalus*, the greatest prominence being given to the two former. The genus *Oncidium* is one of great beauty and interest, and the completeness with which it has been dealt, combined with admirable illustration, will materially strengthen the great work of which it forms a part. We learn that the genus was founded by Swartz, the Swedish botanist, at the beginning of the present century on the West Indian species *altissimum*, *carthaginense*, *Cebolleta*, *tetrapetalum*, and *variegatum*, which he separated from the Linnæan genus *Epidendrum*; but although he knew these only, "so rapid has been the progress of discovery since that upwards of 300 have now been published, including, doubtless, several horticultural varieties, and of these nearly three-fifths are said to have been in cultivation at one time or other." But all of them have not become permanent occupants of our Orchid houses, for whether, as is pointed out, "the circumstances attending the environment of the plants in their native forests are too imperfectly known, or the climatic conditions under which they live cannot be approached sufficiently near by artificial means, or from some physiological cause inherent in the plants themselves, certain it is that of the thousands of Orchids which have been imported from Central and South America a very small proportion have remained denizens among us for any length of time." Naturally the classification of such a number presented great difficulties. Lindley distributed the 200 species known to him into fourteen series or sections; but as all professors do not agree on the number of conjugations required by French verbs, so Bentham, when he overhauled the genus for the "Genera Plantarum," did not agree with this distribution, and reduced the number to four. It is only fair to say that Lindley was by no means satisfied with his own handiwork, foreseeing errors from causes that it was beyond his power to control.

Messrs. Veitch & Sons justly deplore the fact that owing to "the vagueness of the information that has been communicated respecting the habitats of most of the species in cultivation, and the total absence of it in the case of others, and of some known only as herbarium specimens, the geographical distribution of *Oncidium* can only be stated in general terms." Many collectors have thought of nothing but the sale value of their discoveries, and taken no account of the habitat and local surroundings, although it has been in their power to supply much interesting and valuable information of this sort. We hear of Smith, Jones, or Robinson's hunting ground, but that is indefinite to say the least of it. The authors have done their best with the material at their command, and save themselves many pages of letterpress by an admirable coloured map indicating the geographical distribution of the genus, which shows at a glance what it would be otherwise difficult to convey clearly and tersely. The cultural notes are worthy of

study, and from these Messrs. Veitch pass to a synopsis of species and varieties, embracing a careful description of each, references to sources of information and illustrations, and particulars of its introduction. Every reader will welcome the details supplied, but all may not appreciate the amount of labour, inquiry, and research that must have been devoted to collecting them. The task must have proved a tremendous one. We reproduce, by permission, their engraving (fig. 64) of the beautiful yellow and brown

year 1780, the locality given being Guayaquil, in Ecuador, but as this town is a port on the estuary of the River Palenque and situated near the arid coast, this specimen must have been obtained from the neighbouring Cordillera. A long interval elapsed before it again came under the cognisance of science, the first to rediscover the species being Matthews, who gathered it in 1838 at Tunguragua, on the Eastern Cordillera of Ecuador, at 10,000 feet elevation. It was next gathered by Hartweg near Alausi, by Professor Jamieson



FIG. 64.—ONCIDIUM MACRANTHUM.

species *macranthum*, with its curious purple lip, and also their remarks respecting it, which follow a description of the plant and references to plates and other illustrations. They will serve to indicate the completeness of the information supplied.

"The earliest evidence of the existence of this superb *Oncidium* was a single flower in the herbarium of the Spanish botanists Ruiz and Pavon, which was acquired by Mr. A. B. Lambert, the author of 'The Genus Pinus,' and now in the Natural History Museum at South Kensington. This flower was probably gathered about the

of Quito, near Calicali, and by Spruce at Llala and also in Matthews' locality, but none of these botanical collectors sent living plants to Europe. The first notice of it as a horticultural plant occurs in the horticultural journals of 1868, in the spring of which year it flowered for the first time in this country in the collection of Lord Londesborough at Norbiton, and shortly afterwards at Farnham Castle, and in our Chelsea nursery. No indication is given of the origin of these plants, which were doubtless all imported at the same time.

"*Oncidium macranthum* is now well known as a magnificent species of easy culture, one plant of which when in flower 'is enough to ornament a house of considerable dimensions.'"

The same completeness is observable in the treatment of the genus *Miltonia*, with which are included several plants that in ordinary cultivation are classed as *Odontoglossums*. The most familiar examples will be *M. vexillaria*, *M. Roezli*, and *M. Phalænopsis*. The genus is described in its entirety, including several hybrid forms. We reproduce an engraving of one of the latter, *M. Blunti Lubbersiana* (fig. 65, page 373). The flowers are described as "larger than the original form, about 4 inches across vertically; sepals and petals light yellow with broad, closely set purplish brown bars and blotches, and with a purple stain at the base; the basal area of the lip purple with several red-brown lines, the apical area much lighter." The remaining portion of the work is devoted to the other genera named above, and which are similarly treated. It is so admirable in every way that it would be hypercritical to cavil at the slight omission of an index to the illustrations, although the latter are so numerous and good as to merit direct reference.

MR. WILLIAM BULL'S EXHIBITION.

FEW more beautiful displays of Orchids can be visited than that of Mr. W. Bull at his nursery in King's Road, Chelsea. It has been an annual fixture for many years past, and invariably combines the features of a popular exhibition with others of special interest to the connoisseur. It has been opened this year in a condition well worthy of its predecessors and of the establishment. A large show house is now a brilliant sight, and in other structures thousands of healthy plants are coming on. *Miltonia vexillaria* is represented in many varieties, and there are many hundreds of spikes opening and to open. Of *Cattleyas* there are numerous fine species and varieties. *C. Mendeli princeps*, for example, is remarkable for its fine and richly coloured lip; and *C. M. insignis* is a grand form with very broad petals and lip, the latter being of great size and intense colour, while *C. M. conspicua* is also exceptionally fine. *C. Schröderæ* is noteworthy for its distinct orange colouring. Of the many varieties of *C. Mossiæ*, that named *grandiflora* may be selected as one of the best, the flowers being of enormous size. *Odontoglossums* are abundant, and comprise numerous varieties of *crispum* and *citrosum*, *O. citrosum rubrum*, which has a lip of bright rosy mauve, being one of the most beautiful. *O. Pescatorei grandiflora* is a splendid form with large flowers of delightful purity. *O. Schillerianum*, greenish yellow, with light brown spots and a pure white column; the beautiful little *O. Cervantesi*, a charming species which lasts well; *O. Imperator*, supposed to be a natural hybrid, white, blotched with brown; a variety of *O. superbiens*, with clear brown sepals and lip, petals brown, edged with greenish white; and *O. polyxanthum*, greenish yellow sepals and petals, with light brown blotches and brown lip, are also worth noting.

Oncidiums are represented by *O. cucullatum*, *O. concolor*, *O. macranthum*, rich yellow, and of which there are some grand plants coming on; *O. sarcodes*, *O. Marshallianum*, and many others. One of the most delightful of the *Dendrobiums* is *D. Dearei*, a species too seldom seen. The flowers are of the purest white with pale green throat, and they are freely borne. *D. macrophyllum*, rich purplish magenta; *D. thyrsiflorum Walkerianum*, which produces a much broader spike than the type; *D. t. citrinum*, with pale lemon lip; *D. fimbriatum oculatum*, resembling the type, but with a dark purple throat; *D. Devonianum*, *D. Jamesianum*, and *D. albo-sanguineum*, are also in good condition. Of *Lycastes* there are *cruenta*, with its greenish yellow sepals and apricot-coloured petals and lip; and a splendid form of *L. purpurata*, named *magnifica*. *Cypripediums* *caudatum*, *luteo-purpureum*, *lævigatum*, *Lowi*, *Lawrenceanum*, and many others, a splendid plant of *Cymbidium Lowianum*, *Epidendrum Wallisi*, *Vanda Parishii Marriottiana*, soft rosy magenta, sepals dotted with brown; *Pholidota imbricata*, *Tricopilia crispa*, *Phajus bicolor*, *Angræcum sesquipedale*, and *A. Leonis*, *Mesospinidium volcanicum grandiflorum*, *Thunia pulchra*, and the pure white *Cœlogyne cristata alba*, are other features of the collection.

Great taste has been displayed in arranging the plants. The rich and diversified colours are relieved by ample foliage, and the general effect is such as is not readily forgotten. Fashionable London throngs Mr. Bull's establishment in the season, and all interested in Orchids should pay it a visit.

NOTES AND COMMENTS.

NOT many gardeners with large collections of Orchids under their charge are so fortunate in respect to houses as Mr. H. Simpkins at Cambridge Lodge, Camberwell. Mr. R. J. Measures nows as well as any man what houses, whether they be dwelling

or plant houses, should be, and the structures in which his magnificent collection of Orchids is grown are models of what such buildings ought to be. They are constructed of iron and cement, are strong, enduring, well lighted, and well ventilated. Provision is made for flooding the stages at will, and taps are furnished for drawing off the water when necessary. "R. M. B." spoke of certain "peculiarities" last week; he might well have added to them the peculiarity of those who expect Orchids to be grown in the best condition when the structures are totally unsuitable.

When it is considered that there is much fastidiousness amongst Orchids, some species even refusing to thrive in one part of a house and succeeding perfectly in another spot, it will be recognised that good houses are a great desideratum. "Ah, but what about the expense?" will be the question that suggests itself; and as nobody to whom the query is addressed is likely to come forward and provide the money, the matter usually ends there. There are several courses open. One is to abstain from spending money on plants for which there is not adequate accommodation and devote it to erecting suitable houses, and another is to modify expectations. It is unreasonable to expect a gardener to produce the same results with bad material as another does with good. If he were able to do it, and could then describe the means well, he would win, and deserve, a Journal medal.

Of the *Vandas* so magnificently grown at Cambridge Lodge, special attention should be drawn to *V. Parishii Marriottiana*. On the occasion of a recent visit it was in fine bloom, and had been so since September. It is a handsome flower, the sepals and petals being light reddish brown, the latter rosy at the base and the lip deep carmine; but it has not the fragrance of the others. There are some superb plants of the best tricolor varieties, and it is astonishing to note their vigour considering that many of them have had to fight their way through many seasons of London fogs. No one can accurately estimate the evil influences of the latter who has not learned them by bitter experience.

One does not often meet with *Aerides rubrum*, and possibly there are only four or five plants of it in the country; it is, therefore, a special pleasure to drop across it. Dr. Paterson's old plant is comfortably located at Cambridge Lodge, and was recently in flower. It appears to be enjoying suburban life to the full, being vigorous and healthy. The flowers are about three-quarters of an inch across, the sepals and petals pale flesh dotted with carmine, the column blush, and the lip bright carmine. As this is one of the almost unobtainable gems, most cultivators have to be satisfied with *A. Fieldingi*, and of this the Garbrand Hall variety may be noted as very fine.

It is treading on delicate ground to ask what degree of variation justifies the separate naming of seedlings from the same cross. To some the fact that certain colouring stopped short by the 32nd of an inch in the one of the point it reached in the other would be abundant justification of a separate name, but other persons would insist on a broader distinction. To come to the point, should Mr. Norman Cookson's *Lælio-Cattleya* hybrid *Phœbe* have received a first-class certificate, and take rank as a new form, when a similar award was made to Messrs. Veitch & Sons for a hybrid from the same parentage two years ago? It is true that the cross in the second was the reverse of the one in the first, and it is equally true that children of the same parents may differ widely, whether the cross be reversed or not, but the distinction between the *L.-C. Phœbe* of Cookson and the *L.-C. Hippolyta* of Veitch has yet to be pointed out. To all intents and purposes they are identical; why, then, should they bear different names?

Considering that the sale of *Cattleya Victoria Regina* last week was the second one of the same species Messrs. Sander & Co. ought to be satisfied with the result. When it was offered before, unbloomed, nobody paid much attention to it, and small blame to them, perhaps, for "looking before you leap" is a good old motto. But it flowered after that, and the St. Alban's firm treated us to a look at it on May 3rd. As that was satisfactory they arranged for the leap a few days later, Mr. Protheroe officiating: 125 plants were offered, the best of them being a noble specimen with ten pseudo-bulbs about 15 inches long, and 1 inch in diameter. So fine a piece was enough to make anyone envious, and the price ran up to 15½ guineas before bidders cried, "Hold! enough!" Another fine plant brought 8 guineas, a third 6 guineas, and a fourth 5 guineas. I hear of one or two private commissions having been executed at big prices.

The collectors tell us that *Cattleya Mendeli* is getting scarce in its native home, and that much difficulty is experienced in securing really good forms. By way of showing that they at least are equal to the occasion Messrs. Sander & Co. put some 450 lots under the hammer on Friday last. Except for a few specially fine and distinct specimens the individual prices were not high; nevertheless, the gross sum realised would doubtless make the importation a profitable one. But will it prove to be the last for a long time to come? We shall see.

It is very satisfactory to hear of the good progress that is being made at Kew with the gigantic task of forming an Orchid herbarium to serve as a substitute for the one which Reichenbach took such extraordinary precautions to keep out of British hands. We shall do very well without it after all. While the vast stores of information that he had gathered together, largely from English sources, are mouldering under lock and key, a fresh superstructure will be erected which will, in all probability, be far in advance of the old one when that again sees the light of day. Mr. Rolfe is working assiduously, and he has efficient helpers in many private and public orchidists.—NOVA.

THE CULTIVATION OF LATE BROCCOLI.

No matter where one goes the general query and complaint is, "How have your Broccoli stood the winter? Mine are nearly all dead." They stood the early winter all right, but the cold cutting east winds of February and March have withered up most of them. This should certainly lead us to look about, and begin to devise ways and means of improving matters by sowing and planting, also to consider the best method of cultivation and the protection of next year's supply. The only two sorts that I have seen which have stood the last winter are Model and The Queen. I have seen several breadths of Model, dwarf, sturdy, good plants, with useful heads that fetch good prices. I saw some sold at 6d. and 8d. each in the market last Saturday retail. This is a good price for small heads of Broccoli, and will do something towards repairing the loss caused by the partial failure of the crop this season, but the excessive price forbids the working classes buying so useful a vegetable.

A supply of late Broccoli being so important, I think it only a matter of duty to the community at large for trained and practical gardeners to put on record the fact of this or that variety being good and hardy for the benefit of amateurs and cottagers. As to sowing the seed, I find it a good practice to sow late Broccoli about the third week in May on a border on the north side of a wall, and when the seedlings are large enough to handle transplant at 9 inches apart, in the same border, afterwards planting out on open ground from which Peas have been cleared, without any forking or digging, simply hoeing off the weeds and applying a mixture of agricultural salt and soot. The quantity of the former should be regulated by the nature of the ground, whether it be wet or dry, and a few days after it has been used plant out, 2 feet apart each way, in rows. Some prefer to give more room, but I think the majority of gardeners cannot afford to plant at a great distance apart on account of the scarcity of ground; where it can be done it is certainly advantageous. After planting keep all weeds down by hoeing to the end of September or October, according to the weather and the growth of the plants, then fork between the rows, and draw the soil up as if for Potatoes. When treated as indicated late Broccoli has a better chance of withstanding the onslaught of the east winds and the winter and spring snow on account of the stems being protected by the soil.

I have found the following to be good sorts for a spring supply. The three first to be named I have generally lifted with balls of earth and placed under cover (early) for the better preservation of the heads—namely, Veitch's Spring White, Adams' Early White, and Early Penzance. Sorts to succeed these in the open ground are—Leamington, Knight's Protecting (a good old variety), Dickson's Late May, Model, and The Queen. I have tried Lauder's Goshen and Ledsham's Latest of All, but Model has beaten all varieties as far as I have seen for hardiness. I have cut heads until the extra early forcing Cauliflower sown in January and grown in frames was ready for use.—JOHN CHINNER.

DOUBLE IVY-LEAF PELARGONIUMS.

THESE do not appear to become popular in the same way that the Zonal section have done. They lack the brilliancy of these, and no doubt many who tried them in the earlier days of their history were on that account, and also because of their rambling habit, somewhat disappointed with them as all-round useful plants.

Since the time that the distinctly beautiful and dwarf upright-growing *Madame Thibaut* was introduced there has been a number of good sorts distributed. Indeed, every year a small set of new varieties is put on the market, but the number is still limited that one can confidently recommend as really first-rate.

Madame Thibaut, already named, is of a soft rosy shade of colour, is exceedingly floriferous, and is dwarf in growth. *Alice Crousse* is of a bright pink shade, and also good. *Galilée*, a clear rose, is a most lovely sort; it is not so dwarf in habit, but this is easily overcome by a judicious system of pinching. *Souvenir de Charles Turner* is of quite a distinct form from any of these, but withal it is a most beautiful variety. *Robert Owen* is also very good. *Jeanne Gillet* is a distinct shade of bright violet. *Le Printemps* and *Michelet* are both good forms.

For bedding purposes *Madame Crousse* is the one I like best. It is of a rank spreading growth, but flowers with great freedom, and is of a soft and lovely shade of rose. This, *Galilée*, *Souvenir de C. Turner*, and *Alice Crousse* are the varieties I prefer. The blooms of many of the large-flowered newer kinds do not open out kindly, and are therefore disappointing. The whole of the varieties are less amenable to greenhouse culture than the Zonal section, and a slightly warmer temperature during the winter and spring will do wonders in keeping the plants in good health.

I have been somewhat annoyed by a parasitic fungus which attacks the foliage. This I believe is prevalent on these plants on the continent, and as it is from continental sources that almost the whole of our new sorts are procurable, there is an ever recurring danger of importing fresh stock. My method of keeping down this pest is to remove every affected leaf. By this means it may be kept in check.

I propagate a stock of plants each year from cuttings taken in autumn—September—and in spring another batch of cuttings is rooted. The September cuttings are placed in 6-inch pots, several in each. These are fine strong plants in spring. They are transferred singly into small pots in February, and in March into 5 or 6-inch, in which most of them flower in early summer. The cuttings which are rooted in spring are grown in cold frames with other plants in preparation for flowering in autumn. They require pinching two or three times, and at least one stake is needful for the support of the main stem and the three or four shoots which proceed from it. Excellent showy specimens are formed by keeping a few of the previous year's plants over the winter and shifting them into 7 or 8-inch pots in early spring. Judicious pinching and the provision of a few stout stakes to keep the shoots in position are the chief points to be seen to in order to get a good groundwork to begin the summer campaign with. The older varieties, which were of a loose habit of growth, required a framework to train the shoots on, but the best kinds of the present day require nothing more than a few stakes.

When I first began to take an interest in the double Ivy-leaf section I expected the flowers would prove of service when cut, and especially to send a distance. For the latter purpose they are unfortunately no better than single Zonals, as in hot weather, I am told, the trusses arrive with the petals shaken off.

As to the most suitable compost, I do not find them at all particular. I have grown equally good plants in a compost of loam with one-fourth of fine cow manure and a little sand added, as in others of loam, leaf mould, and sand, or loam, peat, and sand. Plants received direct from the continent are invariably potted in peat and sand. It is necessary, in order to keep the plants in good condition and flowering continuously, that liquid manure or surface dressings be given periodically.—B.

NOTES ON VINE MANAGEMENT.

WE often see the foliage of Vines inconveniently crowded, even in vineries where those in charge ought to know better. I have gone through houses where it was almost impossible to see a ray of light from above—not only in those devoted to early varieties, but in others in which Muscats alone were grown, also in late vineries. It is a fault to overcrowd the leaves of such an accommodating Grape as Black Hamburgh, but it is a worse one in the case of Muscat of Alexandria, and such late sorts as Alicante. I could name places where as many as three and sometimes four shoots were left growing on each spur, and only on one of these was a bunch of Grapes to be seen. I have more than once made the remark, "Why do you leave so many shoots to one spur?" and the answer invariably is, "I thought the more foliage I had the more roots the Vines would make."

In the case of Muscat of Alexandria I never saw a presentable bunch from Vines managed in this way. Not far from where I write is a vinery, half of it being planted with this variety. The rods were too close, but with the addition of superfluous growth

from the spurs the evil was seriously aggravated. For ten seasons certainly I have never seen a presentable bunch from those Vines, as shanking always occurred. Leaving three shoots to a spur in the case of late varieties is bad practice. How can Grapes grown in this way be expected to keep during the winter? There is no chance for the wood to mature, or for the berries to toughen their skins. If people who treat their Vines in this manner were to give a thought to the matter I think they would follow the excellent advice given by Mr. Dunkin on page 234. They would not think of planting three Cabbages in the place of one, and expect a good specimen. Why, therefore, should they thus overcrowd their Vines? Abundance of foliage is to be desired, but it must not be at the expense of maturity, and it is not possible to have that where each leaf does not receive its full share of light and air. In the case of black Grapes I do not assert that the fruit will not colour when the leaves are crowded by the retention of an excessive number of shoots, because I know it will. I never saw better coloured examples of Madresfield Court and Alnwick Seedling than some which came under my notice last year in a vinery managed on the lines which I so strongly deprecate, but the bunches and berries were exceedingly faulty. The colour was the only redeeming feature in them, and it made but poor amends for other defects.

Referring to Mr. Dunkin's remarks on stopping and tying the shoots, there are but few of us who have vineries so constructed as to admit of the trellis being 2 to 3 feet from the glass. Vineries have often to act as plant houses also, and they will not admit of so much of the space being occupied by the trellis. In far too many instances the vineries are not built high enough. In dealing with strong shoots, which have to be bent in an opposite direction to that in which they tend naturally, and which are more difficult to get down to the wires than others, I pass a stout piece of bast around the shoot a couple of inches or so from its base, securing it to the main rod. Such a support is of the greatest possible aid in bending a strong shoot, which might otherwise snap from its socket, although tied carefully.

Where the trellis is only 17 inches or so from the glass, and very strong shoots of Alicante have to be dealt with, the usual difficulty in thinning this variety is increased if they cannot be got down to their final position before the bunches are ready for thinning, as the wires and leaves have to be contended with. Knowing the great inconvenience of thinning such bunches before they are brought into their final position below the wires I always endeavour to arrange for that before the berries are large enough to be thinned by the aid of tying the shoots near the base as previously described. I thus generally manage without serious mishap. The wires in our case are not further from the glass than the distance noted above.—E. M.

THE GENUS NARCISSUS NEAR BAYONNE.

(Continued from page 352.)

THE special pseudo-Narcissus of Bayonne and its neighbourhood, which is undoubtedly indigenous there, is the one generally known as *pallidus præcox*. Parkinson's description of "the early straw-coloured bastard Daffodil," to which he gave that name, hardly suits the average specimens which we see. He says, "The leaves are of a mean size (*i.e.*, middle size, as the context shows), the stalk riseth up a foot or more, whereon standeth one large great flower, equalling the greatest Spanish Daffodil before described in the largeness of his trunk, and having the brims turned up a little, which maketh it seem the larger; the wings are short, and stand straight outright; all the whole flower is of one even colour, somewhat like unto the colour of lemon peel, but somewhat whiter, which usually we call a straw colour," &c. These characters may apply to selected specimens, both as to size and to colour; for I have seen and grown in my own garden Daffodils collected somewhere near Bayonne having flowers of uniform colour, and quite as large as those of *maximus*. But the ordinary Daffodil of the country is not remarkable for size, nor is it uniform in colour, the crown or trunk being somewhat darker than the perianth; but in this particular the flowers vary in different woods a few miles apart, and even in the same wood, for I have found amongst the ordinary forms isolated specimens of a uniform pale cream colour. The largest average of size which I have seen were collected for me in a wood at St. Barthelemy, about six miles north-east of Bayonne. Still the pale Daffodils of the department of the Basses Pyrenees have distinctive characters of their own besides colour. The leaves are pale green, more like those of Snowdrops than of common Daffodils, and the loose spathe gives the bud before opening a peculiar shape, like that of the bud of the common English Arum.

I do not think that this Bayonne variety has a very wide range

of distribution. Daffodils of the same colour were found by Mr. Peter Barr as far west as the Asturias in Spain; but I cultivated several lots which he kindly sent me of these, and they are not the same as those from Bayonne. Others used to be sent to me by M. Bordère from Gedre. They were collected for him, he said, in the Eastern Pyrenees; but these were not similar either in form or habit, only in colour, to what I got from the valley of the Adour. I never had any of the variety which has now become so common in the English market, except what were collected within a few miles of Bayonne. Until the English colony grew up at Biarritz *pallidus præcox* was safe in the obscurity of its native woods, but it is not and never was found near Biarritz. Perhaps the soil round there is too sandy for it. Though I searched nearly every wood as far as the Spanish frontier I never could find a true Daffodil on the western side of the Nive, which flows through Bayonne running north and south. On the eastern bank of the Nive they are common in all the woods, which slope up steep hills to a height of 400 or 500 feet; but the Daffodils are generally confined to the lower parts, ascending along the streams, of which there are many, to a height of about 200 feet. I never saw them except in woods, and no coppice of deciduous trees seems to be too thick for them. They show a decided preference for a northern or western slope, however steep, and generally avoid hills which face east or south, as the Hoop Petticoats do. For instance, they abound close up to Bayonne on the southern bank of the Adour, which runs east and west; but on its northern side they do not become common until the ground slopes again to the north.

The demand for these bulbs for the English market has led to their cultivation both at Biarritz and also on a smaller scale in some of the peasants' vegetable grounds near Bayonne. As most of the imported bulbs die in England in a year or two, and as they are sold very cheaply, the demand continues to increase. I am told that a few miles south-east of Bayonne, in the Basque country, the supply is unlimited; but where the climate is so favourable for their increase they can be grown more easily in cultivation, and I think this mode of producing them is practised more every year. As wild plants I hardly ever noticed them in clumps, as if they multiplied by offsets; but every bulb seems detached as if an independent seedling, and this, too, where the surface of the ground was bare, and there seemed every facility for increase. The sale of these as cut flowers is greater amongst the English visitors than the resident French. Large quantities come into the market, both at Biarritz and Bayonne, from the end of January onwards. I constantly inquired where they came from, and the vendors generally said from their own grounds; but thousands daily were gathered from one or two market gardens in Biarritz, which were of themselves almost sufficient to supply the demand.

I have not much to say of other varieties of Trumpet Daffodils. I never saw, nor could I get any sound evidence about the self yellow minor, though Bayonne has been recorded as a habitat for it. As for the major with the gashed trumpet and the upright large glaucous leaves, I once had a lot sent me said to have been collected at Villefranc, four miles from Bayonne. They were mixed with some very large and peculiar pale Daffodils, and some which seemed intermediate in flower between the two kinds. They certainly did not come from where it was alleged that they did, and though I offered the collector more than five times their value to show me the spot, I never could get any trustworthy information about them, and concluded that they had been dug up from the private grounds of some château where major and *pallidus præcox* grew together, and had produced seedlings. It is not improbable that major may be found wild not many miles away, but neither I, nor my kinsman, who has lived forty years on the spot, ever saw a bunch of major in the flower market. It is true that the same might be said of *maximus*, about the reported occurrence of which I was until lately sceptical, but which I hope I have now fairly run to ground. To this, however, I must allude when I next write.—C. W. Dod, *Edge Hall, Malpas*.

(To be continued.)

COTYLEDON (ECHEVERIA) FULGENS.

THIS highly decorative winter-flowering plant merits much better cultivation than is generally bestowed upon it, and as much attention will now have to be given to the propagation and growing of various kinds of plants for the decoration of conservatories and dwelling-rooms during the winter months, this easily grown and most accommodating plant ought not to be overlooked by intending cultivators. The present is a good time to increase the stock. Those who possess a few old plants should place them in a moderately warm house to induce a free growth of the heads and side shoots, which, when large enough, may be taken off and inserted in small pots. Almost any kind of soil will

grow them, but a light friable loam with a little leaf mould and sharp sand is what we generally use; in this the cuttings will readily establish themselves if placed on a shelf or bed in a warm vinery or Cucumber pit where they can be slightly shaded from hot sun. The old plants may be thrown away, unless wanted for a further supply of cuttings, or where the stock is limited; but it will be found next to useless to keep them for flowering again.

When it is seen that the cuttings are beginning to grow, and that the pots are filled with roots, the young plants may be shifted into 5 or 6-inch pots, using a similar soil to that recommended for the cuttings, with the addition of a sprinkling of bone meal or Thomson's Vine manure. When potted they ought to be again placed where a gentle warmth will encourage free growth and root action in the new soil. As the season advances the plants may be placed outside after being gradually hardened, a bed of ashes under a north wall suiting them admirably. They may remain out until the usual time for housing plants susceptible to injury from heavy autumn rains and early frosts. If grown as described, the plants will have thrown up flowering stems, and may be placed on shelves in vineries or Peach houses, or in any light airy structure from which frost can be excluded.

The fact that no insects of any kind seem to trouble the plants in any stage of growth enables them to be housed and stood in positions that could not be occupied by others liable to be infested by thrips or mealy bug. This is a strong point in favour of a more general cultivation of this showy plant. Although, from the succulent nature of the *Echeverias*, they are able to stand drought to an extent that would ruin many plants, attention to watering must be given at all times, as if allowed to become too dry the large leaves become flaccid and the small leaves on the flowering stems will turn yellow and wither, which disfigures the plants very much. By introducing a few to a warm house at intervals of a fortnight or so they may be had in flower at Christmas and onward. They should be given a position as close to the glass as possible, as the colour and brightness of the flowers will be much intensified.

We annually grow about 100 plants, and find them invaluable for winter and early spring work, the glowing colour of the flowers being particularly attractive during the dull months of the year. They require little or no support in the way of staking or tying. Not seeing this useful plant so generally grown as it deserves to be, I am induced to offer these few remarks. It is peculiarly a plant for the amateur, while as a window plant it has but few equals.—W. N., *Badminton*.

ROCK GARDENS.

(Continued from page 292.)

ERIGERON aurantiacum is a very showy, bright, and easily grown plant which I have used on the rockery, although I think it more suitable for the border. There are others of this family, such as *speciosum*, which I have grown on the rockery, but have now consigned them to the border.

Erinus alpinus and its variety *albus* are pretty and easily grown things on a dry part of the rockery, and in truth do better on a dry wall than in any other place. They are not showy, but free flowering, and for this reason ought to find a place on the rockery.

As *Dianthus alpinus* and *neglectus* are the gems of the rock garden in their shade of colour, pink, I think the palm must be given to the *Gentians* as blue flowers, and of the alpine species *acaulis*, *bavarica*, and *verna* are without doubt the most beautiful. *G. acaulis*, the old and well-known *Gentianella*, is a plant that does not seem to be fastidious, and grows in many gardens that I know most luxuriantly. I know one garden where broad belts of it border the flower beds a foot or more in width, and it seems to thrive well on borders or rockeries. Its large flowers, out of all proportion to the size of the foliage, are so well known as to need no description, and are certainly amongst the deepest in colour of the many blue flowers; but when we come to speak of the other two species we have a different tale to tell, and they are an instance of how carefully the habits, the likings, and dislikings of plants ought to be considered by the cultivator, for while *verna* delights in limestone, *bavarica*, on the other hand, rebels against it, and yet in appearance they are very similar. But how different the conditions in which they are found. *G. verna* is a native plant; it occurs in Teesdale, in North Wales, and in the West of Ireland especially in great abundance, in the counties of Galway and Clare, but always on the limestone; and although found on the Alps at high elevations it occurs in the county of Clare only about 3 feet above the sea level up to about 1000 feet. So decided is its preference for limestone that in the dolomite

country, where there is a most curious geological formation, the granite and the limestone impinging on one another, my friend Mr. Selve Leonard informs me that it is never found on the granite, but is abundant on the limestone. I have only lately learned these facts, and hope by recollecting them to grow it better than I have done, although I have not been altogether unsuccessful with it. It requires moisture constantly at the roots, and in some cases the plan is adopted by Mr. Burbidge of the College Botanic Gardens, Dublin, of making holes obliquely in the soil, so as to pour the water through this way to the roots instead of on the surface. *Gentiana bavarica* is, on the other hand, a plant which likes peat, and indeed will do best in a bog. It is the necessity for studying the idiosyncrasies of these plants that makes their culture so interesting and in some cases so difficult. You treat all *Cattleyas* alike as to soil and temperature. When I pot my greenhouse bulbs the same mixture does for *Ixias*, *Tropæolums*, *Sparaxis*, &c., but here are two species that require



FIG. 65.—MILTONIA BLUNTHII LUBBERSIANA. (See page 370.)

the most opposite treatment and the most different soil, and when this is given and success crowns the effort the grower is sufficiently rewarded. There are other *Gentians*, such as *asclepiadea* and *chamæjasme* which I do not grow, and I cannot therefore say much about them; they are not so dwarf as the three already mentioned. *Dryas octopetala* is a charming native mountain plant occurring abundantly in the West of Ireland on the limestone formation intermixed with *Gentiana verna*. The flowers are very pretty, white, and the foliage very neat. It is a creeping plant and very soon covers the ground.

Geum montanum.—This plant with bright yellow flowers is easily grown and is conspicuous on the rockery.

Dodecatheon Meadia.—This striking-looking flower, called generally the American Cowslip, although it bears no similarity that I can see to that flower, thrives with me in a moist spot on the rockery in peat, where it has been for some years, and never fails to give me abundance of flowers, which are peculiar in form and very attractive. It is always sure to be noticed by any who have not previously seen it.

Hepatica angulosa, the largest and finest of this family, does well with me, and is a very delightful plant. With *triloba*, both the double red and blue, I have had some difficulty, and have found that they succeed better on the border in a somewhat shady spot, and so I can no more regard them as rock plants. Why they should be difficult I cannot understand. I remember as a boy that they were common in all gardens, cottage and suburban; they

required no care, and did not get it, and they were always crowded with flowers. I believe one secret was that they were let alone, for I believe that they resent being interfered with.

Gnaphalium leontopodium.—This well-known plant, which has really nothing very remarkable about it, has had a curious and almost unique history. I say nothing really remarkable. Its flowers are utterly insignificant, and the soft woolly foliage is shared by many other plants, such as some of the Mulleins, *Stachys lanata*, &c. Yet well nigh every tourist who visits Switzerland or the Tyrol raves about it, wants to get it, and carry it off home. It grows very often in places very difficult to reach, so much so that lives have been lost in endeavouring to procure it for some exacting tourist, who, if he had only waited until he reached Geneva, might have procured at the Jardin d'Acclimatation as many plants as he liked; or if he had waited until he came home could have obtained it from any of our dealers in herbaceous plants. Well, people are surprised when they see the Edelweiss growing on a rockery, but, in truth, it is a very easily grown plant, and readily obtained from seed, and as it is deciduous it does not suffer so much from our winters as many Alpine plants do. I do not think that in the open it quite attains the dazzling whiteness which gives it such a charm.

Heuchera sanguinea is a plant which I cannot understand. I have had it for some years. It grows well with me and flowers, but not freely; the plant may throw up three or four spikes of bloom, but that is all, whereas I read of it as having sheaves of flowers and the whole plant ablaze. I cannot get it to do this. It is, however, a most desirable plant, and its foliage is prettily marked, and whether for the rockery or borders ought not to be omitted.

Hutchinsia alpina.—"That! Why there are heaps of our native weeds as pretty as that," will be the greeting that this little pure white-flowered plant will be hailed with when seen on the rockery. Perhaps so, but withal it is a plant well worthy of its place. It is one of those which make an excellent carpet for other things, which push their way through it, and this is a valuable point, for the rockery looks so much better where the surface is covered, and with such plants as this, also *Mentha incana*, *Herniaria glabra*, and *Arenaria balearica*, this can be effected. Many of the *Saxifragas* will do the same, but they are too ready to assert themselves, and after a time become a nuisance instead of a help.

The *Hypericums*, or St. John's Worts, have many charming plants among them, but the only one I have used on my rockery is *repens*, the others being of somewhat too large a growth.

Iris.—Of this large and beautiful family, comprising so many sections and flowers of such diversified colours, there are only a very few that I have attempted to grow on the rockery. There is the lovely *Iris reticulata*, so charming in its deep blue, purple, and orange blotch, and its delicious Violet scent, which has yet another claim on us, for it is one of the early spring flowers. Like many of the family it loves a damp spot, and when left undisturbed it readily increases, and is very acceptable in March and April. *Iris pumila*, dwarf-growing, with various shades of blue, is also well suited for the rockery, and so is *Olbiensis*. I have in vain tried to get that quaint-looking flower *Iris iberica* to do with me. A good deal of controversy has lately been waged around this plant, and perhaps if one were to try the baking process, drying them quite off and then replanting in the autumn, covering them during the heavy rains it might succeed; but the only time when I have been able to flower this or *Iris susiana* is when one secures imported bulbs, which have more or less been subject to this process. An objection is sometimes made to employing these, or indeed any other bulbs, on the rockery, because when they die down they leave bare and unsightly gaps; but where carpeting plants are employed this objection is done away with. Thus *Iris reticulata* will push its way up through some of the tufted *Saxifragas*, and when the grass dies down this remains to give freshness to the place formerly occupied by them.

Lewisia rediviva is another of those plants which have baffled me, and I am not sorry to find that I am not alone in this. It is a quaint little plant from North America, a near relative of the *Mesembryanthemum*, with a large lilac flower, which almost covers the plant. It is, I believe, one of these which absolutely require protection, not from frost, but from drenching rains, and is treated to a warm sunny spot on the rockery. I have tried it several times, but found very little of the *rediviva* about it; it has bloomed with me, but then it perished. I may try it again; but as I am not fired with a noble ambition to do difficult things, and there are so many beautiful rock plants which display their charms without all this trouble and disappointment, I shall not be very grieved if it do not succeed.—D., Deal.

(To be continued.)



EVENTS OF THE WEEK.—On May the 25th and 26th the Royal Horticultural Society will hold their great Show in the gardens of the Inner Temple. A sale of *Cypripedium Chamberlainianum* will take place at Protheroe & Morris's Rooms on the 20th, by order of Messrs. Sander & Co.

— THE WEATHER IN LONDON.—Rain fell during the night of the 20th-21st, but not heavily, and although the weather remained dull and threatening on the 21st and 22nd there was nothing beyond a few very light showers, a heavy south-west wind blowing. Rain is badly wanted in the South, but at the time of going to press the barometer is rising, and there is a promise of dry weather.

— THE TEMPLE SHOW.—The Fruit, Floral, and Orchid Committees of the Royal Horticultural Society will assemble at the Inner Temple Gardens on Wednesday, May 25th, at 11 o'clock precisely. At 12.30 P.M. the Exhibition will be formally opened by the President of the Society, Sir Trevor Lawrence, Bart., M.P., and will close the following day (Thursday) at 8 P.M.

— SIR TREVOR LAWRENCE.—The President of the Royal Horticultural Society has informed his Reigate constituents that he will not seek re-election to the next Parliament. We regret that ill health is the cause.

— AUDIENCES AS JUDGES.—The Widcombe Institute Horticultural Club have established a system of judgment by audiences. At their last monthly meeting three essays on Tomatoes were read by Mr. Horseman, and a prize of 10s. 6d. awarded to that by Mr. Trimby, which was selected as the best by the audience.

— MESSRS. LAING & SONS AT EARL'S COURT.—The prominent position held by Messrs. Laing & Sons' contributions at the International Horticultural Exhibition was drawn attention to last week. Besides a silver medal for their beautiful miscellaneous groups they received first-class certificates for *Anthurium Andreanum atro-sanguineum*, *Streptocarpus Watsoni*, *Croton Reidi*, *Dracæna Bartlettii*, *D. australis variegata* Laingi, and *Oncidium sarcodes punctatissima*.

— AIR ROOTS ON VINES.—In my early vinery all the rods are covered with roots 1 foot long. I attribute the cause to atmospheric moisture. The vinery is a three-quarter span, facing west, therefore does not have sun until the afternoon, and we are unable to admit air during early growth. As the roots are so unsightly, I shall be obliged if some of your readers will express their opinion on the subject, and say if they think that cutting off the roots would injure the Vines.—INQUIRER.

— TEA AND TEA-MAKING.—The Tea garden and provision for illustrating the method of preparation that is adopted for Tea seems likely to form one of the most popular features of the International Horticultural Exhibition. It is expected that everything will be in working order by the 27th. Young shoots containing expanded leaves and buds are picked and placed in a withering room. After the sap has been extracted they are put in a heap to ferment, when they assume a coppery hue, and after that are dried on a charcoal fire for about three hours. The leaves become very brittle, the developed ones becoming black, and the buds, in the best quality Teas, of a golden hue. The Tea is then ready for use. The plants are cut back in the autumn, the object being to secure abundance of side shoots.

— EXTENSION OF TREE PLANTING.—The last meeting of the winter series of the Alcester Social Literary Union took place in the Corn Exchange, Alcester, Mr. S. A. Gothard presiding. Mr. Christie of Ragley Gardens gave his paper on "Tree Planting: Why, Where, and How," dealing with his subject in a highly interesting and instructive manner, pointing out that at the present time there were eight million acres of land in the United Kingdom devoid of trees, and that if tree culture was followed up on these acres it would give employment to 40,000 people, in addition to increasing the wealth of the country. The paper was listened to with great attention and enjoyment by the members present, and on its termination a hearty vote of thanks was given to Mr. Christie for the useful information he had imparted.

— **A SHOW FOR WORKING MEN.**—It is proposed to hold a horticultural and industrial exhibition at Beverley on July 20th and 21st, for working men and their children. A preliminary schedule has been issued.

— **FLOWER SHOW AT HARLOW.**—A Show of plants, flowers, and fruit will be held in connection with the Essex Agricultural Show at Harlow on June 14th and 15th, and the schedule has just been issued. We note that Mr. T. Francis Rivers has promised to fill a tent with a collection of fruit trees in bearing.

— **A DAFFODIL SPORT.**—I have what appears to be either a seedling or sport from a Butter and Egg Daffodil. It is much later than its parent, and of a light lemon colour. Its outer or guard petals are alternately in pairs. Its cups are two; the petals rising between the outer and inner one form a curious double Daffodil. Its flower stalk is oval shaped, and in no way plicated like its parent's.—W. T.

— **WASPS.**—Queen wasps are very numerous this year, which some regard as indicating a warm summer, but I have no faith in the idea. The fact is the great numbers of them are due to the warm days we had in September, 1891, which I mentioned at that time. It is easier to diminish their number now by trapping with bottles of buttermilk than attempting to lessen the plague by trapping their unfertile daughters.—W. T.

— **MAGNOLIA FUSCATA.**—A good specimen of this deliciously fragrant evergreen greenhouse shrub is now flowering and growing freely in the great conservatory at Stoneleigh Abbey, planted on the north side in the shade of some large Camellias. It seems to luxuriate there, and throws off a perfume which is felt on nearing the plants. Like *Luculia gratissima* it wants a cool situation, not too much exposed to sunshine, and under such circumstances is of easy culture.

— **AN INVETERATE GARDEN THIEF.**—At the Enfield Petty Sessions Thomas Partridge, sixty-four, described as a gardener, was charged with stealing a quantity of Thyme. The prisoner pleaded guilty. Detective Caleb Skeates, stationed at Southgate, in reply to the Bench, said that the prisoner had been sent to prison for garden robbing a great many times, in fact he spent his time either in the workhouse or prison. The Thyme stealer now does time to the extent of six months, with hard labour thrown in.

— **SWEET PEAS IN MAY.**—Messrs. Dobbie & Co., Rothesay, have now several varieties of Eckford's New Sweet Peas in full bloom from seed sown in heat in February. The plants are now in 6-inch pots in a cool house, flowering gloriously. The result of this experiment will be seen at the Temple Show, when they will exhibit somewhere about twenty bunches to show what can be done with the Sweet Pea for early work.—W. D. [Mr. J. T. Ebbutt generally sends us a bunch of Sweet Peas in the spring, and we believe he usually has a good supply from before Christmas onwards throughout the season.]

— **ROYAL COMMISSION FOR THE CHICAGO EXHIBITION.**—We have received a copy of the Handbook of Regulations and General Information respecting the Chicago Exhibition in 1893. The Royal Commission announce that applications for space in the British Section can only be received up to Saturday, 21st May. Any applications received after that date will be filed in case of any space becoming hereafter available, but will not be included in the first allotment. The offices of the Royal Commission are at the Society of Arts, John Street, Adelphi, London, W.C., and all communications should be addressed to the Secretary.

— **SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS,** for April, 56 feet above the mean sea level.—Mean temperature of month, 44.0°. Maximum on the 4th, 70.7°; minimum on the 19th, 20.7°. Maximum in the sun on the 2nd, 121°; minimum on the grass on the 16th, 11.2°. Mean temperature of the air at 9 A.M., 45.3°; mean temperature of the soil 1 foot deep, 44.3°. Nights below 32°, in shade seventeen, on grass twenty-five. Total duration of sunshine, 160 hours, or 39 per cent. of possible duration. We had one sunless day. Total rainfall, 0.72 inch. Rain fell on twelve days. Average velocity of wind, 8.6 miles per hour. Velocity exceeded 400 miles on one day, and fell short of 100 miles on six days. Approximate averages for April.—Mean temperature, 45.4°; sunshine, 123 hours; rainfall, 1.65 inch. A dry month, with fine and bright days, but very cold frosty nights. The nights were colder than in any of the last sixteen years, while the days have only twice been warmer in the same period. Vegetation very late, and rain wanted.—J. MALLENDER.

— **MR. J. H. WALKER,** for many years gardener to the late Mr. J. Wesley Lewis, of Hardwick House, The Park, Nottingham, has been appointed by the Leicestershire County Council horticultural lecturer and instructor in husbandry for the county of Leicester. The applications were very numerous, and the appointment was made by examination.

— **GARDENING APPOINTMENTS.**—Mr. A. Long has been appointed head gardener to Herman Hodges, Esq., M.P., Wyfold Court, Reading. He had been seven years head gardener to his previous employer, J. Spiller, Esq.; two at Compton House, Stockbridge, Hants; and five at Westwood Park, Worcester. Mr. R. Whitehurst, formerly gardener to the late Canon Fielden of Honingham, has been appointed head gardener to Mrs. Lewis Loyd, Monk's Orchard, West Wickham, Beckenham, Kent. Mr. F. Harris has taken charge of the gardens of Mr. Mannsell Thorpe, Malsor Hall, Kettering.

— **IMPORTATIONS OF FRESH AMERICAN FRUIT.**—Besides the Apples that come to us in thousands of cases from America we are now to have other fruits. A consignment consisting of 147 crates of Strawberries, thirteen cases of Tomatoes, and twenty barrels of Pine Apples were offered by auction in Liverpool on May 6th and fetched good prices. Both Strawberries and Tomatoes on being opened were found to be exceptionally good and fine. Altogether the experiment was pronounced a success. The White Star steamers have been specially fitted up with refrigerating rooms.

— **THE FLORIST'S TULIP.**—Mr. R. Dean read a very comprehensive and instructive paper last Thursday night at a meeting of the Brighton New Horticultural and Mutual Improvement Society on the "Florist's Tulip." Mr. Dean briefly reviewed the history of the Tulip, then proceeded to illustrate by means of diagrams the process of bulb raising from the time of sowing the seed until the time of flowering in from five to seven years. He then gave a brief outline of the cultivation of the bulb, and concluded by giving a few instances of the enthusiasm manifested many years ago by amateurs in Lancashire and Yorkshire in the cultivation of the flower. A vote of thanks, proposed by Mr. J. Cheal, was heartily accorded to the lecturer.

— **SCARCITY OF LETTUCES.**—Quite recently only moderately good Lettuces were sold at 6d. each, and I heard of instances where as much as 8d. was paid for them. At that time we were cutting excellent samples of the Early Paris Market Cabbage Lettuce from a pit, and could have sold the lot, had I wished to do so, at the rate of 5s. per dozen. This experience, however, was not needed to convince me that it pays well to force this quick-growing variety, and I have frequently suggested to friends that they ought to grow it extensively for the markets. The seed this season was not sown till near the end of January; the seedlings were simply dibbled out on a bed of forced Asparagus, and we commenced cutting early in April.—M. H.

— **THE JAPAN SOCIETY.**—The members of this Society held their second meeting of the first session in the hall of the Society of Arts, John Street, Adelphi, London, W.C., on Thursday evening, May 12th. There was a large attendance of ladies and gentlemen, and Mr. F. T. Pygott occupied the chair. An interesting paper on the "Uses of Bamboo in Japan" was read by Mr. Charles Holme, F.L.S., and was illustrated by an excellent collection of articles made of Bamboo. In opening his subject Mr. Holme remarked that no plant was put to so many uses as the Bamboo. There are many species and varieties, varying considerably in size and manner of growth, but all are more or less useful. Bamboo stems, he said, are not so extensively used for building purposes in Japan as in China and India; but in the former country they played an important part in agriculture and horticulture. The Japanese farmer made threshing and winnowing machines of Bamboo canes, and constructed an ingenious bird scare of them. A specimen of the latter shown by Mr. Holme caused some amusement. In the Tea gardens and for gathering Mulberry leaves baskets or sieves made of Bamboo were utilised in preference to any other. As food, too, the poorer classes used the young stems, and these when boiled had a sweet nutty flavour. Referring to the uses made of Bamboo in horticulture in Japan, Mr. Holme said that the quaint and artistic flower and fruit baskets afforded abundant material for study. They were most beautifully made, and when filled with flowers and fruit presented a charming appearance. The vendors of garden produce displayed their goods in the cities of Japan in such a manner as would cause a sensation in the streets of London or Paris if similarly shown. In domestic gardening various kinds of Bamboo vases and baskets were extensively used, while the window boxes, similarly constructed, were most attractive.

— *EUPHARIS AMAZONICA*.—It is not absolutely necessary by any means that this favourite plant should have large leaves to flower well. Our plants flowered at Christmas, are fully in bloom again now, and will I expect flower again before next Christmas, yet their leaves are quite small as compared with the measurements given on page 335. The colour is a very pale green, and in some places they are scorched through standing in a house which is not wholly shaded. It is said that *Eucharises* should not get a glimpse of the sun after 9 A.M. nor before 5 P.M. That may be correct, but in our case the plants have to withstand much that would not be considered good by everyone. The points to be observed in cultivating them are to give plenty of moist heat, and water at the roots when the plants are making their growth after flowering, also when the spikes are throwing up, but at other times they do not need so much. I think a low and fluctuating temperature with the soil too wet when the plants are not particularly active are answerable for many failures in *Eucharis* culture. Many persons, I fear, lay the blame on the *Eucharis* mite.—E.

— SEED AND SEEDLINGS.—Professor Marshall Ward, F.R.S., gave the first of a series of six lectures on popular botanical subjects in the museum of the Royal Botanic Society's Gardens on May 6th, Dr. R. Prior, F.L.S., in the chair. The lecturer took as his subject "Seeds and Seedlings," dealing chiefly with the various contrivances by which the seeds of many plants are enabled to distribute themselves over very large areas; some winged or provided with hair-like processes in which the wind acts as a transporting agent; others, again, whose distribution depends upon their attaching themselves to animals or birds; and, lastly, where the plant itself does the work, bursting the nut or fruit and throwing the seeds to a considerable distance, as in the Sandbox Tree, Squinting Cucumber, Balsams, &c. Among those plants taking particular care of their offspring, he mentioned the Mangrove tree, which, living as it does upon the extreme edge between land and sea, and therefore more exposed to accident than most other plants, retains its seeds upon the branches until the first root has grown as long as a candle below the seed; then, when at last it falls into the soft mud, it is quite ready to start into growth on its own account.—(*Daily News*.)

— BANISHING SCALE AND MEALY BUG ON VINES.—At this time of the year it is difficult to know what to do with these pests, especially when they get into the minute crevices of the Vine rods. I prepared a wash for my Vines of boiling water poured on flowers of sulphur until the solution became like weak ale, and then added petroleum in the proportion of a glass to the gallon, and carefully brushed the solution, well mixed, into the Vine rods, especially near the junction with this year's side shoots. The point to be careful about is that neither this year's foliage nor shoots be washed therewith, as of course they are much more tender. If any of the flowers of sulphur float on the solution so much the better, as it will be a deterrent to red spider, which is very partial to Vine leaves in a warm vinery where constant syringing is not resorted to. I dressed my Vines thoroughly last winter, but this dressing seems to have completely banished both white scale and mealy bug, so common in amateurs' vineries where plants are generally grown and housed during the winter in the same houses as Vines. If scale, bug, or red spider once get a firm footing in a vinery the crop will be ruined.—W. J. MURPHY, *Clonmel*.

— BANANAS AND TOMATOES IN THE CANARY ISLANDS.—In a lecture recently delivered before the Lincolnshire Gardeners' Association Mr. W. R. Pennell said that the great industry which is now carried on in a portion of the Canary Islands is the cultivation of Bananas and Tomatoes. The Banana crop is very profitable, and indeed this is a wonderful plant; the *Musa paradisiaca* (which no doubt in other parts of the world has different synonyms), which is the one universally grown there and in Africa, has a history older than any other cultivated plant, in fact we never can get to its origin. Thousands of years ago apparently it was the same as now; it has never been found wild, wherever found it has most certainly been planted by someone; it never produces seed, but is always propagated by means of suckers, which fact seems to contradict those who say that continual propagation of a plant by cuttings must end in destroying that plant's constitution. When we consider that it is said more human beings live on Bananas than on flour, and that Manilla rope, delicate straws, and other useful articles are made from the fibre of the stem, it becomes a most important plant in the commerce of the world. A piece of land which will produce 30 lbs. of Wheat can be made to produce 4500 lbs. of Bananas, so one may imagine upon what a small piece of land, and very little labour, a man and his family in a tropical country can exist. It is, moreover, a magnificent plant when well grown, attaining a height of from 14 to

17 feet, with a huge bunch of from 300 to 500 fruits hanging from it, and its grand leaves lend to the landscape a rich and tropical tone. Extensive plots of Tomatoes are grown, which are almost all shipped to Liverpool during the winter months; they are cut just before colouring, packed in shallow boxes, and, as they are only from six to eight days on the journey, they arrive in good condition, and fetch prices but little less than home-grown fruit.

LIVERPOOL NOTES.

CAMP HILL, WOOLTON.

ON a recent visit to Camp Hill there were many attractive plants to notice in the well-kept greenhouses; but, as I propose to deal with the place at greater length later in the season, the following notes will suffice for the present. First came the Azaleas, and when we see such perfectly flowered specimens and in such fine condition, their usefulness cannot be over-estimated. Beautiful as were the trained plants, there was one fine old specimen, some 5 feet high and 6 feet through, growing in a wooden tub, of the old variety *alba*, which was really charming. It was as perfect as one could wish to see, literally wreathed with its beautiful flowers, which to my mind are still unsurpassed for purity by any white in cultivation. No tie had been used, and there it stood alone, a gem any artist might envy.

Greenhouse Rhododendrons were there in variety and full of bloom, but several huge plants of *Veitchianum* and *fragrantissimum* were matchless, loaded as they were with their enormous white flowers so prettily crimped at the edges.

Mignonette Golden Queen is a capital variety for pot work, and a striking contrast to the white flowered varieties. It is dwarf, sweetly scented, and flowers profusely. Splendid plants in 6 and 8-inch pots carrying several dozens of flowers, which were staked upright, looked most effective in the conservatory.

Though rather late for some of the Orchids, particularly the *Cœlogynes*, which had carried over 300 flowers each, yet what I saw denoted the good cultivation they receive. *Dendrobiums* were very good, several plants of *D. Wardianum* being conspicuous. *D. Devonianum* and *nobile* were there in abundance, and grandly flowered. *D. fimbriatum* had twenty-six spikes, *D. thyrsiflorum* twenty-five spikes, *Cymbidium eburneum* eight spikes, and a grand piece of *Cymbidium Lowianum* had six spikes and ninety-one flowers. There were several fine forms of *Odontoglossum crispum*.

The beauty of Cheshunt Hybrid Rose for colour, form, fragrance, and freedom of flowering was clearly demonstrated by a healthy plant, which covered the greater portion of one side of the conservatory. Everything showed the able management of Mr. Jellicoe, the gardener.

STRAWBERRY LA GROSSE SUCRÉE.

Of the merits of this Strawberry I think there can scarcely be two opinions. I bought a few plants in small pots two seasons ago. One half were planted out and the remainder put into 5-inch pots for forcing. Last season they produced some very fine fruit both in the pots and outside. We are at present just finishing our forced fruits, which have been excellent, and those outside are showing some excellent trusses. The fruit grows to a large size, is of good colour, and very firm, thus rendering it far superior to *Vicomtesse Héricart de Thury* for packing. The flavour, though inclined to acidity, is most agreeable. The heavy land around here—Liverpool—seems to suit it admirably.

THE GOOSEBERRY CATERPILLAR.

This has made its presence severely felt in several places near Liverpool. In one garden I saw a great number of trees literally covered with it and nearly devoid of fruit and leaves. It is not often it makes its appearance so early. Handpicking, though troublesome, proves one of the most effective means of exterminating it.—R. P. R.

PASQUE FLOWERS.

AMONGST the many beautiful flowers which adorn our rock gardens and flower borders in the early spring months few are so interesting or more deserving our attention than the charming Alpine Pasque Flowers, a sketch of one of which (*Anemone patens*, fig. 66), accompanies these notes. Under their old name of *Pulsatilla* they were great favourites of the old gardeners, Miller notably being especially fond of collecting all the species and varieties in a little corner of his garden. Exactly as the pretty *A. vernalis* is seen on the snowclad Swiss mountains, so is *A. pulsatilla* seen still in many parts of England, though, alas! becoming fewer every year owing to the depredations of travelling plant merchants. It is a really good rock plant, and next to *A. patens*, one of the showiest and best. It thrives well in a light gritty soil to which has been added about one-third of old mortar rubbish, and should be frequently raised from seed, which it ripens freely.

A. patens is the only *Pulsatilla* found in America. It is plentiful in the valleys of the Rocky Mountains, Missouri, and Platte, and is, curiously enough, identical with the form found in Siberia and

elsewhere in Europe. It varies somewhat in habit and character, but is readily distinguished from all the other species by its much

never fails to attract attention by its large sepals and bright golden yellow stamens. Another valued peculiarity of *A. patens* is its



FIG. 66.—ANEMONE PATENS.

larger and brighter purple flowers and more robust growth. It thrives remarkably well on western exposures on the rockery, and

earliness; long before the bleak March winds have left us the silky buds of *A. patens* are pushing above ground, to open in all

their beauty a week or two later. We are told that in a wild state the flowers are produced long before the leaves; but under cultivation, so far as we know, they appear together. Even when the flowers are over we are not quite done with this species, as the fruit is a most interesting sight in late summer and autumn; each seed has a long feathery tail about 2 inches long, soft, silky, and very attractive.

The variety *ochroleuca* is not so bright as the type. Both are most readily raised from seeds, which should be sown as soon as they are gathered in the autumn. This is perhaps best with all the *Pulsatillas*. They should be sown in pans and stood in shady cold frames until they begin to grow. *A. Halleri* and *Häckelli* with their very deep rich purple flowers are well worth a place on the rockery. The Meadow Pasque Flower, *A. pratensis*, from the northern parts of Europe, is one of the most variable of all. In the ordinary forms the flowers though small are rich purple, but in others they are dull grey purple, positively ugly, and in *obsoleta* the sepals are wanting entirely. The beautiful *A. vernalis*, so difficult to flower under cultivation, is a gem well worthy of the gardener's skill. It produces, with us very sparingly, large solitary reddish purple flowers, the outside of the sepals being covered with long silky brown hairs. It requires an abundance of water in early spring from the time the buds show until they open.

—DAISY.

NOTES ON CABBAGES.

SPRING Cabbages are valuable in proportion to their earliness, and Mr. H. Dunkin did well to point out on page 333 his method of producing a welcome supply. Mr. Owen Thomas also showed how well they could be produced early in the season by exhibiting a basketful of small yet firm and excellent specimens of Ellam's Early at the meeting of the Royal Horticultural Society on the 3rd inst. These were grown at Frogmore, and must have been in good condition for use at least a week previously; perhaps cutting commenced some time before then. Our reference to the Royal exhibit, together with Mr. Dunkin's note, brought us several letters, a few of which we publish. We have also received samples of Cabbages, one gardener remarking that his plebeians cannot be expected to equal the royalists. If they had been alone in competition most judges would have been constrained to place them "equal first." We are pleased to note that all the samples we have received were of similarly high quality, and all were Ellam's Early, except one, Webb's Emperor, very similar to Ellam's, but a little larger and not quite so firm, still in excellent condition. Our correspondents who had plenty of Cabbages ready in April, or even the first week in May, admit their value, and their letters suggest how others may have an early supply next year. The experience of our correspondents is worthy of record and remembrance.

I MUST congratulate Mr. H. Dunkin upon his success in Cabbage culture. I doubt if there are many gardeners who are able to make such a statement as that which appears on page 322. Never do I remember such a scarcity of Cabbage plants or so many being killed by the winter. Out of a bed which I had planted from a sowing made about the middle of August only half survived. The soil here is heavy and of a retentive nature resting on a bed of blue lias clay. In a neighbouring market garden there is the best bed of Cabbages I have seen this year, not a blank to be seen. They were raised early, but they will not be ready for table for some time. Had they been Ellam's they might have been. Mr. Dunkin's note will not be forgotten when the time comes round for sowing Cabbages.—R. M., *Monmouthshire*.

THE sowing of Cabbage seed in July for an early spring crop is not so much practised as it deserves to be, as the produce is fit for use at a time when green vegetables are not very plentiful. I make a sowing about the 10th of July, and sow again from the 20th to the 25th of the month. Another sowing is made early in August, which in ordinary seasons make a good succession. We put out 200 plants of each of the July sowings last September. Many of the first sowing are ready for use. Out of the 400 plants, I have lost through the winter three dozen. We planted out 300 of the August sowing and two-thirds are missing, the remainder may be ready for use at midsummer. I have raised a number of plants under glass to make good the loss. I have followed the above practice of sowing some years, and seldom have a plant bolt. The variety I rely on is Ellam's Early. Our soil is stiff and clayey. On lighter soils near here August-sown plants are dibbled out in nursery beds a few inches apart, where they appear to have stood the winter very well, and thousands have been sold.—J. DARE, *Stancliffe Gardens, Matlock*.

THE kitchen garden here is an unctuous loam on a subsoil of clay. On the 13th July I sowed four varieties of Cabbage, of which 250 plants were put out on a south border. Only two bolted and succumbed. I commenced cutting firm heads on the 2nd of May. The plants from the August sowing are at present not much larger than when they were put out. From 300 we have lost about twenty.—J. MASSON, *The Gardens, Tottingworth Park, Heathfield, Sussex*.

THOSE persons who have grown Ellam's Cabbage in the past do not need to be told anything about it, but those who have not, and I fear

there are many, have lost considerably. I consider this variety has only one fault, if it can be called so—that of all the plants coming to maturity together. From a market point of view perhaps this would be considered a point in its favour, but it is not so for home consumption. Instead of sowing all the seed at one time it is better to sow at intervals for insuring a continuous supply. Our soil is heavy, cold, and retentive, yet by the middle of April we had crisp little heads. We sow the first pinch of seed the last week in June, and the second a month later. The plants from the last sowing are now "turning in." We find ample space is afforded by planting 10 inches apart in rows 15 inches asunder. They passed through the winter uninjured. An important point in Cabbage culture is to get the plants out early, so as to have them well established early in the autumn. We plant in drills drawn across the quarter on which Onions previously grew, the soot and wood ashes employed for that crop seeming to suit the Cabbage. Keeping the ground well stirred is advantageous, and prevents ravages by slugs when the plants are put out. It is wonderful what a good effect one thorough soaking of liquid manure has early in April if the weather be dry. At that time the plants seem to need something to make them "turn in" quickly, and at the same time to be crisp.—E. MOLYNEUX, *Hampshire*.

ON page 332 Mr. Dunkin calls for notes on Cabbages grown on heavy land. As our soil is extra heavy I will endeavour to give my experience on the subject. Three years ago I took charge of these gardens. I made my first sowing of Cabbages the last week in July, but found the plants were not strong enough to stand the severity of the weather, so I resolved to sow earlier in future, and have since made my first sowing about July 2nd, putting out the plants as soon as ready. I commenced cutting on the 5th inst. About five plants out of 100 bolted. I may add that I have been laughed at for sowing and planting so early, but some of my hilarious friends are now following my example.—SAMUEL SCOTT, *Rathmore, near Belfast*.

FOR the past three seasons I have sown the first seed between the 15th and 20th of July, and have never yet had to record a single instance of bolting in the variety Ellam's Dwarf. As soon as the plants could be safely handled they were planted 1 foot apart, and when large enough every alternate one was used, which left room for the others to develop. The second sowing is made the first week in August. If we have a favourable winter and spring, the plants for this sowing are good; but if the contrary, and especially in the latter part of January and February, it is astonishing the number that succumb. I have at the present time a splendid breadth of Ellam's Dwarf, and have been cutting for some time. About six weeks ago a good dressing of decayed manure was lightly forked in between the rows, the benefit soon being apparent in the improved growth. Growing by the side of this is the Manchester market variety; but as many are showing signs of bolting I shall not try it again for early work. The patch of ground upon which they are planted is some 15 inches from the solid clay. In conclusion, let me bear out what Mr. Dunkin has said—viz., to make two sowings instead of one.—R. P. R., *Lancashire*.

I FULLY agree with Mr. Dunkin's remarks (page 332) on successional sowings. We make our first sowing on or about the 15th of July, our favourite being Ellam's Early; then again about a month later with the same variety, at the same time making a sowing of Enfield Market for late use. It is not every season in this changeable climate of ours that the first sowing proves a success, but is well worth the trial. At the present time we have some scores of solid white-hearted Cabbages that have caused more than one of our neighbours to break the tenth commandment, and I pride myself they would hold their own for quality even in company with the famous Warwickshire bed. I venture to believe there are other points of vast importance in connection with good Cabbages thus early beyond the timely sowing, such as their early removal from the seed bed, their winter position, and the preparation of the ground. Ours being rather light and friable soil, we always endeavour to follow Onions or Peas with Cabbages, merely clearing the surface after such crops, and planting the Cabbage in the firm ground that has been thoroughly well dressed for the preceding crop, the results from such a course being a close sturdy growth during the autumn, well adapted to withstand our ordinary winters, much better than larger and more succulent growth. Immediately growth commences in the spring we give good soakings of liquid manure or dressings of nitrate of soda. Moulding the plants up as weather permits, followed in few weeks' time by another good feeding, causes rapid growth and tender hearts, such as I enclose for your opinion. Enfield Market will be quite a month later, yet most useful in its turn for the servants' hall between late Broccoli and early Cauliflower.—J. FRIEND, *Surrey*.

I SEE on page 332 in your *Journal of Horticulture* that Mr. H. Dunkin of Warwickshire has a note on Cabbages. The one mentioned is Ellam's Early. The sowing was made in July last year, and the plants set out to stand the winter in the usual way, and he is rewarded by cutting Cabbages in the first week in May. I shall now inform you what I have done. I sowed Webb's Emperor in July, and I have been cutting good Cabbages since the second week in April. Market gardeners here are doing the same, though the winter has been very severe. Enclosed you will find a couple of Cabbages, not the best, but the medium.—A. MURRAY, *Morpeth*.



THE EFFECT OF DRAUGHT ON MARÉCHAL NIEL.

I DO not think there is any Rose which is so susceptible to the effects of draught than this noble variety, and I have had direct proof of it only this season. I was desirous of increasing the number of trees, and had no alternative but to establish some plants in a low span-roofed house, from which the frost is only just kept out during the winter, and in which it was difficult to find root room, the floor of the house being of cement. Underneath the side stage, which is a batten one, a bed was made about 3 feet square on the surface with freshly cut turf for the retaining walls, this being not more than 15 inches deep. The compost employed was strong fibry turf partly decayed, about three parts to one of horse manure and old lime rubble. Half-standards on the Briar were obtained, the heads of which were pushed through the trelliswork of the stage. The previous year's growth was cut back to two or three eyes. Plants were put in at both ends of the house; the one at the further end made shoots 15 feet long, the foliage being very strong and of good colour. From this plant we have this year had a quantity of very fine blooms, exceedingly rich in colour, and of excellent substance. From first to last the plant has not had a suspicion of mildew or insect of any kind beyond a few green aphides, which a gentle fumigation got rid of. While the buds were bursting their calyx and the foliage was very tender, the temperature many times stood at 33°, yet neither foliage nor blooms showed any ill effects. The plant close to the door, and consequently exposed to almost continual draught, has never grown vigorously. The foliage has invariably been attacked by mildew, despite all the known remedies for this parasite. The blooms, though freely enough produced, are pale in colour, the stalks exhibit great weakness, the petals are limp and show a disposition to premature decay at the base, the flowers being in every respect but one—quantity—a failure. The plant in question is at the lighter end of the house, obtaining all the sunlight available. I have long held the opinion that draught is the great precursor of mildew on all plants, whether they be Roses, Peaches, or Vines.—E. M.

MAGGOTS.

YOUR correspondent "Rosier" must surely live in an early neighbourhood to be troubled by the Rose maggot as yet, but if he is there is no means of getting rid of it or keeping it out but hand-picking. No insecticide or other appliance is of any use.—D., *Deal*.

PARIS GREEN FOR ROSE MAGGOTS.

ON page 360 I notice a remark on hand-picking Rose maggots on which I should like to say a word. I have never seen any reference to Paris green being used for this troublesome pest, but can testify to its efficacy in clearing a large Gloire de Dijon tree in a very short time in 1890. I would recommend Rose growers to spray or syringe in the absence of a proper sprayer, in the proportion of 1 lb. of Paris green to 150 gallons of water, or on a small scale one teaspoonful to a bucketful of water, say 3 gallons. If using a fine nozzle syringe take in a syringe-ful of liquid, then send it back with full force to stir up the Paris green from the bottom and draw in while the liquid is on the boil from the force, thus keeping the liquid at a uniform strength, otherwise the Paris green to a great extent sinks, thus making some of the liquid too weak and the remainder too strong, which causes scorching of the edges of the leaves. Care must be used not to deluge the foliage, but simply to damp all portions as near as can be and stop as soon as it begins to drip off. Finger and thumb work is both disagreeable and tedious, and much time would be economically saved at a mere trifle as to expense of material. I should be pleased to hear of the results from others.—J. HAM, *Astwood Bank, Redditch*.

FADED ROSES.

I THINK that on this subject and that of Rose judging in general there is a good deal of misconception, and that my good friend, Mr. Biron, forgot the old Latin adage "*Ars longa, vita brevis*." If we did as the French do, have the judging on one day and the show on the next, these things might possibly be done better; but do those who carp at judges consider what it means? Let me take the principal class for nurserymen, 72's. It rarely happens that there are more than four boxes from serious consideration, but these have first to be selected if the points have to be taken. It implies, therefore, that five Roses would have to be examined each minute, for it must be remembered that at the Crystal Palace Show barely one hour can be allowed for judging, and those who have been selected for that purpose have nothing else before them. It is therefore not difficult to see how we so often find people complaining of the decisions made in such classes. I hardly think that Mr. Biron helps the matter by his definition of what a faded Rose is. Is a Rose which has lost two or three shades of colour a faded Rose?—D., *Deal*.

JUDGING ROSES.

"Y. B. A. Z." comes near the point at which I wish to arrive in his suggestion as to pointing the comparative merits of form, size, and colour. Mr. Raillem in his interesting letter avoids the essential part of my query. He, in his first letter, said that there was no difference between "giving points to" and "taking points from a Rose." I quoted

the paper in the "Rosarian's Year-Book," not with the view of enlarging the discussion, but to show that the writer of that paper did not take the same view as Mr. Raillem. If Mr. Raillem objects to *Perle des Jardins* I am perfectly willing to take either of the other examples mentioned in the paper referred to above, and I ask, "Are we to give a point or points to such a Rose as a Charles Lefebvre the size of *Duchesse de Caylus*, or to a Thomas Mills with its eye open from over-blooming?" If not, I fail to see how Mr. Raillem's interpretation of the paper referred to can be correct. However, I have written to the author of that paper, and I hope that his opinion will appear.—HENRY B. BIRON.

COLOUR IN MARÉCHAL NIEL ROSES.

I DO not know whether it is generally known that the colour of *Maréchal Niel* Roses can be greatly improved by affording them a little shade. While cutting some Roses a few days ago I was much struck with the deep colour of one which had been growing in the shade of a rafter and a thicket of leaves. This led me to try an experiment with another bloom, and I am quite satisfied with the result. Anyone wishing to improve the colour of their Roses or verify what I state may do so by taking small squares of tissue paper (brown) and folding them round the buds while they are yet firm, then tie them round the stem at the back, leaving the front open, and they will observe the improvement as they unfold their petals. This may appear a little faddy to some, but the work is worth the cost. I enclose two blooms for your inspection; one has been shaded, the other exposed to the light, and the difference is very marked. The value of shading *Maréchal Niel* may perhaps be known to exhibitors.—R. M.

[One of the blooms sent was distinctly richer than the other, though not of such a deep golden hue as a bloom we have received from another source, but we do not know whether the latter had been shaded or not.]

NOTES BY THE WAY.

Fruit and Jam.

I ENDEAVOURED to show on page 331 an aspect of horticulture in Kent that is fraught with deep interest to all who look forward to a development of the fruit-growing industry in England, and what was stated there in sober fact may serve to show that their hope is not an idle dream. There are armchair fruit growers in plenty, and calculations by the fireside have enabled them to show without difficulty what they have never accomplished, and a plain record of "something attempted, something done" will perhaps be generally thought of more practical value. Columns of figures sometimes arrest attention and prove attractive in a certain degree, but avenues of robust and vigorous trees are a thousandfold more potent to those who think calmly and refuse to lose their heads with every fresh sensation. There is no gainsaying their influence even when not in fruit. Seated lately in the comfortable little "Bull" Hotel at Sittingbourne I noted a photograph of a pleasant episode at Pear-gathering time, and the heaped up baskets of splendid fruit were not without effect; but they were only on paper after all, and the magnificent trees of Pitmaston Duchess referred to before proved far more impressive, even though they were only just bursting into blossom, and fruiting time was still distant.

There are many fruit farms in the neighbourhood of the old Kentish town other than that managed so successfully by Mr. A. J. Thomas, and a drive through them on a bright spring morning when the blossom is unfolding is an experience not readily forgotten. Miles of Apples, Pears, Plums, and Cherries stretch away on every side—a glorious vista of snowy alpine summits brought down to the earth's level. Sittingbourne is rapidly developing into a fruit-growing paradise. The town smiles with flowers in the spring, and in the autumn with the rich and mellow products of the farm. There are fruit-growers of all grades to be met with—farmers, such as Mr. Thomas; gardeners, such as Mr. Fryer, the excellent Secretary of the Horticultural Society; and amateurs, such as Mr. Thomas Henham, a veteran grower enjoying the respect of his fellow townsmen, all of whom are earnest cultivators, whether their collections be large or small, and whose knowledge of fruit is exceptionally good. The latter piloted me through several miles of blossoming fruit trees, and as his recollection extends back to the time when the stage-coach was the general means of communication the difference between past and present could be more clearly realised from his remarks. The many acres of vigorous and healthy trees afford an indication of the spirit of the age, and a building now approaching completion shows its latest development. It is a jam factory erected by private enterprise, and by means of which fruit, for which a prompt and profitable sale cannot be found when ready, will be converted into something that will keep until a suitable time arrives for disposing of it. It will obviate the danger of loss arising from a glut of fresh fruit, and as the demand for pure and wholesome preserves keeps on growing a glut of good jam need not be feared. On every side there are tokens of life and energy, the mainsprings of an industry that is yearly growing, and which finds work for many hands that would have to remain idle under the old régime.

Passing from the roads and lanes which are skirted by the fruit fields, and into one or two private establishments of note in the locality, the same able and energetic spirit is found, and a few remarks may be devoted to two of them.

TUNSTALL HOUSE.

An intimation to "find all the fault possible" accompanied the welcome that greeted us on entering the gardens attached to the pleasant

residence of George Webb, Esq. This would be all very well if conveyed to a dyspeptic who happened to be casting about for something to relieve his feelings upon, but is less likely to meet with a response when health and spirits have been raised above the normal level by a drive through the blossom-laden byeways. And putting this consideration aside, there is much more to praise than to blame. The Vines are worthy of the district in which they are grown. Stouter growth and finer foliage are rarely seen, the huge leaves being of great substance, full of colour, and perfectly clean. They are a lesson of the importance of thin training, for crowded shoots could never produce them. Such leaves will draw up copious supplies of sap and elaborate it in the most complete manner, to the marked benefit of the Vines. With subsequent management conducted on the same principles as have prevailed in the early stages, the fine bunches that are now developing will finish in a manner highly creditable to the grower. The plant houses are freely furnished and brilliant with bloom. A magnificent plant of the beautiful double white Clematis Duchess of Edinburgh faces the doorway of one. It covers a light trellis with a mantle of foliage many square yards in extent, and is wreathed in flowers of large size and snowy whiteness. The blooms vary both in size and fulness, the best examples being nearly as large as a saucer, perfectly double, the petals overlapping evenly, and the whole flower having a soft fleecy appearance that is full of charm. This beautiful Clematis belongs to the Florida section, and requires no pruning beyond thinning out some of the growths when they become crowded. No one seeing the splendid specimen in full beauty at Tunstall could fail to regret that this and other delightful varieties of its class are not more frequently met with. It is planted out and receives an annual mulching. As associated with a mixed collection of flowering plants in spring its beauty cannot be overstated, and it blooms again in November when the Chrysanthemums are brought in for the autumn and early winter display.

There is a fine display of Azaleas and Rhododendrons, amongst the latter being a very good specimen of the beautiful pure white species Veitchianum. It has borne 130 trusses of bloom, each with two or three flowers, and reminds one forcibly of the value of this beautiful Rhododendron for spring flowering under glass. Small plants 18 inches to 2 feet high are not to be despised, for they bloom freely; the flowers are large, handsomely fimbriated, and sweet. Azalea mollis in variety is lavishly used, and presents a rich glow of colour. Streptosolon Jamesoni is also worthy of note as a freely blooming plant of distinct and attractive appearance. Zonal Pelargoniums are not grown better in many private places than at Tunstall. There is an excellent display of them, and some fine plants carrying large trusses in 5 and 6-inch pots from cuttings struck in an early vinery in January this year serve to show that the right method of growing these useful plants is well understood. One of the chief attractions at Tunstall is the fernery, which is small, but beautifully furnished. The walls are lined with Booty's tiles as receptacles for the plants, and these undoubtedly afford a good and convenient means of clothing the structure. Some grand Filmy Ferns are grown in frames. A feature of the spring display in the flower garden is the admirable use made of the two charming Primulas cashmeriana and denticulata, which form delightful beds when surrounded by white Arabis. Mr. Aitken manages the various departments of the garden under his charge equally well, and is without doubt a good gardener.

WOODSTOCK PARK.

Had we been unacquainted with the fact that the dreaded foot and mouth disease had broken out amongst the stock at Woodstock Park, the residence of E. Twopenny, Esq., the earnestness with which sundry police constables watched our movements on entering the estate would have suggested the idea that we must have the air of suspicious characters. The garden gate was reached after a little cross-examination, conducted, be it said, a little more gently than if the querist had been a Gill or a Russell. The glass structures are handsome and well built, and it has been Mr. Dowdeswell's business to see that they are well furnished. The collection of Orchids is not large, but eminently select, and the plants are in admirable condition. Several choice Cypripediums enrich the display. Cannas are grown for flowering during the winter, and they are still in beauty. The varieties are not the tall "sub-tropical" kinds, but a dwarf French strain, only growing 12 to 15 inches high. They bloom continuously throughout the winter, the flowers unfolding successively. There is not the slightest difficulty in having the plants in flower for many weeks, especially if they are supported with cow manure, which they appear to greatly appreciate. These dwarf Cannas are handsome in themselves, and effective for mingling with other plants. Another plant that does valuable service is the beautiful Begonia Gloire de Sceaux, which is only met with occasionally, but is invariably admired. It has handsome dark bronzy foliage and bright pink flowers very freely borne, the leaves and blossoms harmonising well. It is not found good for early winter blooming, but from January onwards through the spring and summer, it is a splendid object. Cuttings are struck in August.

Chrysanthemums are cultivated somewhat extensively, and the varieties are kept well up to date. Mr. Dowdeswell is a successful exhibitor of them. His specimen plants, which are not repotted but receive a good top-dressing, are in the first stage of training, and he exhibits admirable examples of cultural skill. Of Zonal Pelargoniums there is a select collection, some of the best of the round-flowered type being represented. Wedding Ring, light scarlet; Dr. Morris, deep scarlet, fine pip; Freya, bright red; Edith George, a grand pink; Sir Percivale, a splendid pure white; Mrs. Norman, salmon pink; and the Rev. F. H. Brett, brilliant scarlet, enormous pip, are a few of those now

in bloom. There is also a fine rosy red variety raised from Messrs. Cannell's seed by a cottager, and which is well worthy of a name. The Vines are in splendid health, amongst them being some sixty years old, which formerly bore puny shoots one-eighth of an inch in diameter, but which have been completely renovated by liberal feeding, chiefly with Thomson's manure. Judicious support and good culture have made them bear excellent crops, notwithstanding that at one time they appeared to be worn out and worthless. The spring flower gardening at Woodstock is attractively carried out, and the soil appears to suit Hyacinths and Tulips well. Some grand trees are observable in the park, which at this time should be springing into beauty; but unfortunately another step in the stamping out of the foot and mouth disease has to be taken which will sadly mar the effect, all the tree stems having to be whitewashed. Compared with this the slight inconvenience of having to dismount and cool one's feet in a tub of disinfecting fluid before leaving the place is unworthy of a thought.

But farewell must be said to the many pleasant associations which cluster round this delightful corner of Kent.—W. P. W.



AN INTERNATIONAL SHOW.

MR. JOHN THORPE is reported in the *American Florist* as having recently said that the project of an International Chrysanthemum Show was under consideration by a committee of the Local Directory of the World's Fair. A technical objection had been raised on account of a clause in the charter, which might be construed so as to prevent the taking of an admission fee for entrance to the ground before the opening of the fair, but he believed that this point could be adjusted, and that the Exhibition would be held and be worthy of the great occasion.

PORTSMOUTH SCHEDULE.

THE Portsmouth Chrysanthemum Show, which is one of the most important of the southern provincial exhibitions, is fixed for Nov. 2nd, 3rd, and 4th. The schedule has just been issued. It comprises eighty-seven classes. In the principal one for a group, £4, £3, £2, and £1 are offered, and good prizes are given for specimen plants. The most important of the cut bloom classes is that for forty-eight, twenty-four Japanese, not less than eighteen varieties, and twenty-four incurved with a similar reservation. The prizes are worth winning, the first being £10, the second £7, the third £5, the fourth £3, and the fifth, £1 10s. For twenty-four blooms, twelve Japanese and twelve incurved, £5, £3, £2, and £1 are offered. Good prizes are also offered in the mixed class, which is to consist of six Japanese, six incurved, six reflexed, and six Anemones (Japanese Anemones excluded), but this is limited to Portsea Island growers. Special prizes for vegetables are offered by Messrs. Sutton & Sons.

SOUTH SHIELDS SOCIETY.

The annual meeting of the Chrysanthemum and Winter Flower Show Society of South Shields was recently held in the Guardians' Board Room, Alderman Eltringham, J.P., presiding. Mr. B. Cowan, Hon. Secretary, read the balance-sheet, from which it appeared that there was a balance in hand of £40 17s. 3d. The Chairman moved the adoption of the balance-sheet, which, he thought, they would all agree was most satisfactory. Alderman Mabane seconded, and said he thought it was a matter for congratulation of the Committee and townspeople that they were able to produce such a Show as they had last year. The motion was agreed to. Alderman Mabane moved the re-election of the officers and Committee, the principal being: President, Alderman Eltringham; Vice-Presidents, Alderman Mabane, Alderman Readhead, and Mr. M. Wood; Hon. Secretary, Mr. Bernard Cowan; Treasurer, Mr. Michael Graham; Financial Secretary, Mr. H. Hinde. Mr. P. Thornton seconded, and the motion was agreed to. On the motion of the Chairman, seconded by Mr. T. Vasey, Alderman Mabane was appointed Chairman of the General Committee. It was decided to hold the next annual Show on November 9th and 10th, and to augment the prize list by £20. The name of the Society was changed to "The South Shields and Northern Counties Chrysanthemum Society," and it was determined to affiliate it with the National Chrysanthemum Society of England.

DAFFODILS AND NARCISSI.

(Concluded from page 334.)

CULTIVATION IN POTS.

My remarks under the heading of cultivation I propose to devote chiefly to cultivation out of doors, but as all kinds of Narcissi do well in pots, I may say a word or two upon indoor cultivation. For greenhouse or conservatory decoration they go well with Hyacinths and Tulips, so there should always be a few potted up in October to come in about March. They may be potted singly in 4 or 5-inch pots, or in threes in 6 or 7-inch pots. Some sorts such as Emperor, Empress Horsefieldi, and Sir Watkin, have very large bulbs at times, and for three

bulbs would require a 7 or 8-inch pot, but a smaller pot suffices for the others. The Hoop-Petticoats may be planted five in a 5-inch pot. For a good potting soil I would recommend two parts of rich loam, one part of leaf mould, and one part of rough sand. A little soot and well-rotted cow manure mixed with the soil would be a help. See that the drainage of the pot is perfect, and do not pot the bulbs too tight, as that seriously hampers root action. Place the bulbs with their tops about an inch under the surface, and then put them out on ashes in a cold frame to winter. When they begin to show bloom give plenty of light and air. If they are brought into the house they should not be left in a room where fire and gas is burning, else they will soon flag. When they are done blooming they may be put out of doors to dry off until June, then knock out the bulbs and let them have the sun on them for a few days, after that storing them away until September or October in a dry, airy place. They require very little water during the winter, but must never be allowed to get dry after they have shown the bloom scape.

CULTIVATION OUT OF DOORS.

In growing *Narcissi* in the flower border, it may be presumed that the soil is, to some extent, made free and friable; for, in a heavy clay, only the very strongest growers would have any chance, and even they would not be very happy in it. Bulbous plants cannot brook tightness or strangling. To grow a collection of Daffodils to perfection, different soils and situations would be required. Beginning with the commonest kinds, plant them in the poorest soil, and in such a position that they may be left undisturbed for years. Strong growing kinds, like *Emperor*, *Empress*, and *rugilobus*, should be planted deep, say not less than 8 inches, and the best soil for them is a deep strong loam. Do not press the soil around them. If planted by September (as they ought to be) the autumn rains and the long spell of winter will do all that is required in firming the soil about the bulbs. You must bear in mind that in a week or two from the time of planting the roots begin to grow, and as they keep on growing during the winter they want breathing space. Although these are strong growers they should not get any manure after planting. If the ground requires enriching, old cow manure or thoroughly well rotted stable manure should be supplied the year before, so that it would have become wholly incorporated with the soil before the bulbs came in contact with it. *Horsefieldi* *Countess of Annesley*, *Golden Spur*, *Ard Righ*, and others of the *spurius* type should be planted very early, in August if possible, or, at all events, not later than September. They do not require to be planted so deep, nor in so strong a soil. They do well when lifted every July and planted again the following month, just giving them a month or six weeks to harden their bulbs. The white trumpet varieties, *cernuus*, *moschatus*, *tortuosus*, *pallidus* *præcox*, and that grand Daffodil *maximus*, are all weaker in growth and like shallow planting. The soil for these must be light; the aspect southerly, and getting plenty of sunlight. They do well at the foot of standard Roses, for they seem to like being relieved of some of the moisture in the ground. On gravelly or warm sandy banks they do admirably. In moist or retentive clay they ultimately perish. The double *cernuus* is a delicate grower, and wants to be tenderly dealt with. A light soil and a warm situation is indispensable for its welfare. The dainty little Hoop Petticoat Daffodil should be planted at the foot of some ornamental tree and left alone, provided the situation is not damp. If it is, it must be lifted about July and replanted in August. It is rather long winded, for, although it begins growing early in autumn, it is a late bloomer.

The Peerless or Star *Narcissi*, such as *Cynosure*, *Queen Bess*, *Stella*, *Princess Mary*, and *Leedsii* *amabilis*, should not be planted deeply. Being all of them garden hybrids they have been used to rather a rich soil, and take well with it. They may be lifted and replanted annually. As in the case of the White Trumpet varieties, so with the White Star *Narcissi*; they are delicate and shy in growth, and want a little nursing. The lovely little Cyclamen-flowered variety *triandrus albus*, poetically called *Angels' Tears*, may be grown on a north border, or where it is not exposed to the full force of the sun, but it is much more satisfactory to grow it in pots. The Poet's *Narcissus* section want careful management. It is of no use attempting to grow them in heavy clay soil. The soil must be light and in fine condition when the bulbs are planted, a deep, rich, sandy soil suiting them well. Sometimes the Double White is apt to go blind. This, it is said, may be obviated by lifting every second year, so that to insure a number of flowering bulbs half the stock might be lifted annually. The foregoing remarks apply to those planted in the open border; but many, if not all, of the kinds named do well in the grass, and they look uncommonly pretty peering up here and there on a lawn that is not kept too closely cut. The whites and the smaller ones are very pretty when grown on a grassy bank. *Queen Anne's Daffodil*, a lovely gem with the petals overlapping each other with geometrical accuracy, likes a gravelly soil, and should be planted pretty deep for its size. It is best to lift it in July, and after hardening the bulbs plant again in a month or so. Before leaving the subject of cultivation I may mention that in preparing these cultural notes I have had the valuable assistance, for the sake of comparison with my own notes, of the experience of one of the highest authorities on the Daffodil, Mr. F. W. Burbidge, the able and accomplished Curator of Trinity College Botanic Gardens, Dublin; and Mr. Hill, who so successfully manages the great Daffodil grounds of Percy J. Kendall, Esq., at Newton Poppleford.

THE BEST KINDS TO GROW.

Any of those I have named are worth growing, and in a good representative collection it would be a pity to leave any of them out. But if

I were restricted to a list of twenty sorts I would name the following:—Large Trumpet Section: *Golden Spur*, *maximus* *tortuosus*, *Emperor*, *Empress*, *Horsefieldi*, *Countess of Annesley*, *capax plenus* (*Queen Anne's Daffodil*). Medium Trumpet Section: *Sir Watkin*, *Queen Bess*, *Cynosure*, *Stella*, *Codlings and Cream*, and *Eggs and Bacon*. The True or Poet's *Narcissus* Section: *Poeticus ornatus*, *poeticus flore-pleno*, *Burbidgei*, and *triandrus albus*. To these I would add the three Jonquils—the Single Sweet-scented, the *Campernelle*, and, in addition, the *Queen Anne's Double Jonquil*, which, by the way, must not be confounded with *Queen Anne's Daffodil*, a totally different variety. The old double Daffodil, now so popular with Americans, is well worth growing. In conclusion, I would strongly recommend a more extended cultivation of these lovely flowers. They have a long blooming season, they come in the spring when there are few out-of-door flowers to be had, they are bright and cheerful-looking under all conditions, either indoors or out of doors, and they are easy of culture. They are, indeed, as the poet has put it, "things of beauty and joys for ever." The time at my disposal has prevented me from going into the question of raising Daffodils from seed, and the wide field taken up by hybridisers of this flower, from whom we have received many beautiful forms of the *Narcissus*, but I hope that I may have led some of my hearers to see that there is, in the study of this flower, a great field open to the botanist, the florist, and the amateur."

A discussion took place on the structure, cultivation, and packing of Daffodils, in which Messrs. Carlile, Bartlett, Stoneham, and Lansdale joined. The Chairman, in proposing a vote of thanks to Mr. Hope for the above interesting paper, congratulated the members upon the great success which had attended the first session of the Association, a success altogether beyond that which was expected. Lieutenant Smith seconded, and the resolution was carried with acclamation. Mr. Hope, in returning thanks, said it was exceedingly gratifying to him that the Society had been so successful. He believed that they had laid the foundation for a very successful Gardeners' Association. It was also a pleasure to him to know that their little Society was being regarded by others of a similar kind as a model one. It was pointed out that a silver medal would be offered for competition on the subject of pruning next session. A vote of thanks to the Chairman concluded the meeting.—(*Devon and Exeter Gazette*.)

THE GARDENERS' ORPHAN FUND.

ANNUAL DINNER.

THE fourth annual dinner of the Gardeners' Orphan Fund took place in the Whitehall Rooms, Hotel Métropole, London, on Tuesday evening, May 17th. There was a large company present, upwards of a hundred gentlemen sitting down to the tables, and Sir James Whitehead, Bart., occupied the chair. Noticeable amongst others were Sir Trevor Lawrence, Bart., M.P., Alderman and Colonel Davies, Dr. Masters, Messrs. H. J. Veitch, J. Cheal, F. Sander, G. Bunyard, A. F. Barron, J. Laing, A. Veitch, R. Dean, G. Paul, D. Morris, A. Outram, J. S. Ingram, F. Q. Lane, W. Goldring, P. Crowley, H. J. Cutbush, R. Cannell, and many well-known horticulturists. The tables were beautifully furnished with vases of *Pelargoniums*, *Anthuriums*, *Tulips*, *Orchids*, and other flowers kindly supplied by Messrs. Cannell, Laing, and various other nurserymen. Justice having been done to the excellent repast provided, the customary loyal toasts were proposed and drunk with enthusiasm, and following these came the most important one of the evening, namely, "Continued Prosperity to the Gardeners' Orphan Fund."

Sir James Whitehead, who was warmly received, in rising to propose this toast, made an earnest appeal on behalf of the Fund. He said he attributed his presence there that evening to the fact that during his mayoralty in 1888-89 he was instrumental in starting a fund for the promotion of fruit culture in this country. He felt highly honoured to think that he had been invited to take the chair and to make an appeal on behalf of the orphans of the gardeners of England. While gardeners were supposed to receive, and in many cases did receive, a fair remuneration for their services, it could not be said they were a very highly paid class of men. Thus it was that when from time to time many of them were taken away prematurely their children were thrown more or less upon the charitable institutions of the country. He knew that in many instances the services which had been rendered by the father had been recognised by those who employed him; but in the main, of course, they had to deal with the fact that the children of a man who occupied more or less a labouring position, although in the case of a gardener it was associated with science, could not expect to be supported by those who employed their father. Recognising that fact, the horticulturists of the country had established in commemoration of the Queen's Jubilee the Gardeners' Orphan Fund, which made allowance not exceeding 5s. per week, in aid of the maintenance of orphans until they were fourteen years of age. In addition to that they gave grants not exceeding £10 to apprentice orphans to any particular trade. The help rendered was no doubt very small, yet it was a real boon to those in whose behalf it was given, and he believed that nothing could exceed the gratitude which the widowed mother and other relatives of the poor children showed towards the benefactors who were connected with the Fund. (Hear, hear.) The Institution was one of the most useful which had ever been founded, and it was not too much to say that, except for that Fund, a very large number of children would be compelled to seek refuge in the workhouse, with all its demoralising effect. The Fund was one of the most economically-worked societies he had ever been associated with. With the exception of £40 or £50 a year

paid for clerical work all the administration of the Fund was purely voluntary. (Cheers.) There were no office expenses, because the Royal Horticultural Society had kindly given the Fund a home at Chiswick, and they had nominated Mr. Barron, the garden Superintendent, to be Hon. Secretary of the Fund. Mr. Barron performed his duties with great judgment, zeal, and efficiency, and he showed an enthusiasm for the cause which had a great deal to do with its success. (Hear, hear.) During the first year of its existence the Fund took eleven children under its charge. The following year the number swelled to nineteen, and subsequently to thirty-nine, and now there were fifty recipients of its charities. If the result of that dinner was satisfactory they would be able to still further increase the number to sixty or sixty-five. At the present time there were a very large number of cases with which the Committee were unable to deal, but not one of them was undeserving of help. He was informed on good authority that the Committee could dispense ten times the amount had they it in their coffers. There were many reasons why the Gardeners' Orphan Fund deserved support. One was that it was supported principally by gardeners, for whose orphans the organisation had been instituted. He had noticed that the subscriptions far exceeded the donations, which was very creditable to the gardeners of this country. He thought, therefore, that gardeners who helped themselves and endeavoured to lay by provision for their children worthily deserved to be assisted by the rich. He knew that all could not participate in this Fund; but if well supported, the Institution would be able to render aid to many poor orphans, and to increase the immense service and usefulness which it has already accomplished. (Cheers.)

H. J. Veitch, Esq., responded in a few well chosen words, and said that although Treasurer of the Gardeners' Royal Benevolent Institution he took a deep interest in the welfare of the Gardeners' Orphan Fund. It was felt by some that there was a rivalry between the two Institutions, but this he was in a position to disclaim. (Cheers.) There was not, and must not be, any clashing. The Gardeners' Orphan Fund was instituted for the benefit of the poor widows and orphans, while the Gardeners' Royal Benevolent, as was well known, assisted those who are disabled through age and infirmities to follow their profession. There was ample room for both Institutions, and all should work together. If there was anything which demanded general sympathy more than any other, however, it was the Gardeners' Orphan Fund. He felt sure that there was not another charitable institution which would come nearer the heart of the Queen than the Gardeners' Orphan Fund if Her Majesty knew about it. (Cheers.) It was true that the help given was small, but many present could perhaps scarcely imagine how grateful the poor widows and orphans were for the little assistance rendered. In some cases he knew the late employers assisted the fatherless (cheers), but in many instances they did not. He did hope, therefore, that everyone who could would put their hands deep in their pockets in order to forward this good cause, for in the best of all books it was stated that the most sincere form of religion was to help the poor widows and orphans. (Cheers.)

Responding to "The Chairman," Sir James Whitehead said that no one felt the importance of horticulture more than himself. (Cheers.) He was happy to know that the efforts made by the Mansion House three years ago, during his period of mayoralty, had been attended with considerable success, having resulted in more than 27,000 acres of land being recently put under fruit culture in this country. (Cheers.) He was confident that everyone who judiciously planted fruit trees would not only be remunerated for their labour, but would derive considerable advantage therefrom. (Hear, hear.) Every farmer and cottager in the country should be encouraged to plant fruit trees.

Sir Trevor Lawrence proposed "Success to Horticulture," and in rising to do so remarked no one could derive greater pleasure from horticulture than he did. The pleasure, too, he was happy to say, had extended over a long period. He could recollect considerable matters connected with horticulture for over half a century, and therefore nothing gave him greater pleasure than helping forward any movement connected with it. In horticulture we had a pure and unalloyed pleasure, as well as a respectable calling. He was well aware of the difficulties with which gardeners had to contend. They had, among other things, to make plants of all parts of the world denizens of this country, and to grow tropical fruits even better than they were cultivated in their native habitats. He was sure that there was no better fruit produced anywhere than in this country (hear, hear), which afforded evidence of the skill of our gardeners. English gardens in general, according to his experience, compared favourably with any that could be seen on the continent. Regarding the movement now being made in connection with horticulture by various county councils, he thought that some central authority ought to deal with the matter. Mr. H. R. Williams and Mr. J. Laing responded in appropriate terms.

Mr. Brian Wynne at this point announced the result of the evening's subscription, and said that the list far exceeded the Executive's most sanguine expectation. Amidst great cheering and enthusiasm it was stated that the subscriptions had been numerous and generously given, reaching just over £1000. Sir James Whitehead, Bart., the Chairman, had most liberally headed the list with £100, and Lady Whitehead had also contributed £5 5s. The President of the Fund, Sir Julian Goldsmid, Bart., had given £50, and amongst those mentioned were A. W. Weeks, Esq., £39 10s.; Baron Schröder, £20; G. M. Segar, Esq., £21; Mr. G. Paul, £17 4s.; Mr. W. W. Protheroe, £12 11s.; Mr. H. B. May, £12; Mr. W. Bull, £10 10s.; N. Sherwood, Esq., £10 10s.; Messrs. Veitch and Sons, £10 10s.; Thames Bank Iron Co., £10 10s.; Colonel Davies, £10 10s.; H. G. Bell, Esq., £10 10s.; Messrs. Sutton & Sons, £5 5s.;

Messrs. B. S. Williams & Son, £5 5s.; Messrs. W. Paul & Son, £5 5s.; Messrs. J. Laing & Sons, £5 5s.; and H. R. Williams, Esq., £5 5s. Numerous other gentlemen also contributed towards the Fund with great liberality, but want of space forbids a fuller list.

Following the announcement of the subscription list came other toasts, which included "Kindred Institutions," proposed by A. W. G. Weeks, Esq., and responded to by N. Sherwood, Esq.; and "The Visitors" by Mr. R. Dean, to which the Mayor of Richmond, and Alderman Samuel responded. An excellent musical entertainment, under the direction of Mr. J. T. Musgrove, enlivened the proceedings considerably, and a most enjoyable evening was spent.

ROYAL HORTICULTURAL SOCIETY.

MAY 17TH.

RARELY has the Drill Hall been so bare as it was on this occasion. The exhibits, if arranged together, would barely have sufficed to fill the central table, and all the Committees had an easy task. The explanation is, no doubt, the near proximity of the Temple Show, for which exhibitors are probably reserving themselves.

FRUIT COMMITTEE.—Present: Phillip Crowley, Esq. (in the chair), Messrs. John Lee, A. Moss, R. D. Blackmore, Harrison Weir, J. Cheal, A. W. Sutton, G. Taber, T. J. Saltmarsh, G. Bunyard, A. Dean, W. Bates, G. H. Sage, G. W. Cummins, G. Wythes, J. Hudson, F. Q. Lane, H. Balderson, and J. Smith.

The exhibits brought to the notice of this Committee were few in number. A box of well-grown Brown Turkey Figs came from the Duke of Northumberland, Syon House, Brentford (gardener, Mr. G. Wythes), and a cultural commendation was awarded. Branches of *Ficus elastica* bearing small fruits were also shown by Mr. Wythes. Samples of a Fig named Pingo de Mel were shown by the Earl of Dysart, Ham House, Richmond (gardener, Mr. G. H. Sage), and a first-class certificate was awarded. The fruits apparently disappeared, however, in the process of testing, and we are unable to give a description of them. The same must be said of a dish of Empress of India Strawberry, also certificated, shown by Lord Suffield, Gunton Park Gardens, Norwich (gardener, Mr. W. Allan). Mr. Allan exhibited other seedling Strawberries and several Melons. One of the latter, named Gunton Orange, a medium-sized red-fleshed fruit of good colour and quality, was awarded a first-class certificate. A seedling Melon named Westley Surprise was shown by R. Burrell, Esq., Westley Hall, Bury St. Edmunds (gardener, Mr. A. Bishop), but it did not receive any award. A box of Tomatoes came from F. Ridout, Esq., Bure Homage, Christchurch (gardener, Mr. T. Bootes); and seeds and a seed pod of the Mahogany Tree were shown by Messrs. Wrench & Sons. Mr. R. Orlebar, Hinwick House, Wellingborough, sent a dish of Strawberry John Ruskin, for which a vote of thanks was accorded. These fruits also disappeared somewhat prematurely.

FLORAL COMMITTEE.—Mr. George Paul (in the chair), Messrs. H. Herbst, R. Dean, H. B. May, Norman Davis, C. J. Salter, C. Jefferies, T. W. Girdlestone, E. Mawley, T. Baines, C. Noble, J. Fraser, W. Watson, G. Gordon, G. Hippen, and R. Owen.

The most showy contribution that came before this Committee was a group of *Calceolarias* from T. Northard, Esq., York House, Lower Sydenham (gardener, Mr. J. Slater). These plants were of a good size and exceptionally well flowered, deserving the vote of thanks which was accorded. Messrs. H. Lane & Son, Berkhamstead, sent a hamper of Anna Marie de Montravel Rose, the plants being dwarf and covered with bloom. Several other *Polyantha* Roses in pots were likewise shown by Messrs. Lane, to whom a vote of thanks was accorded. A small but choice group of Roses came from Messrs. W. Paul & Son, Waltham Cross. These included plants of a charming Hybrid Tea named Lady Henry Grosvenor. This beautiful variety received an award of merit, and is more fully described below. A box of cut blooms and a plant of a new hardy climbing Tea Rose named Pink Rover were also included in Messrs. Paul's collection, but this variety was not specially noticed by the Committee. The flowers are of a good shape, bright pink in the centre, the outer petals being nearly white, and the plant appears to possess a vigorous habit. Six fine standards of a Moss Rose named Zenobia were likewise conspicuous in this group, the plants being remarkably vigorous in growth and well flowered. The blooms are of a magenta crimson colour, and are produced in clusters on stout stems. When half expanded the buds are most beautiful, although not so well mossed as some varieties. The recently introduced Tea Rose Medea (a fine pale yellow) and Princess May (pink) were conspicuous amongst other varieties.

Messrs. J. Veitch & Sons, Chelsea, sent two hampers of Fancy Pelargoniums. One named Arete, a most brilliant variety, received an award of merit, and is referred to below. The other, Florence Edith, was a little taller in growth, but exceedingly well flowered, the blooms being white with just a faint tinge of magenta in some of the petals. Blooms of *Pæonia Wittmaniana* and a fine plant of *Pandanus pacificus* were also exhibited by Messrs. Veitch. The *Pandanus* was awarded a first-class certificate, and is described below. Flowering branches of various trees and shrubs were likewise shown by Messrs. Veitch & Sons, and noticeable among them were racemes of *Wistaria sinensis alba*. This was awarded a first-class certificate, and is referred to elsewhere. *Cerasus serrulata*, a magnificent double Cherry, was shown in good form, this being decidedly better than *Cerasus avium multiplex*, also

exhibited for comparison. A few flowering shoots of *Citrus trifoliata* (*Pseudægle sepiaria*) were included in Messrs. Veitch's collection. A bunch of *Streptocarpus* blooms came from T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gardener, Mr. C. J. Salter); and cut flowers of *Mackaya bella* from the Hon. P. C. Glyn, Rooksnest, Goodston (gardener, Mr. J. Friend). A small collection of *Rhododendron* blooms was sent from the Royal Gardens, Kew, the best being *Griffithianum* (fine white), *Dalhousianum* × *formosum*, *Kewensis*, and *arboreum* var. *album*. Messrs. J. Peed & Sons, Norwood Road, S.E., sent plants of *Anthuriums* *Jeffersi*, *Roupelli*, and *J. Peed*, for which a vote of thanks was accorded. Blooms of a blush-coloured seedling *Carnation* were shown by Messrs. Laing & Mather, The Nurseries, Kelso, N.B.; and Mr. J. O'Brien, Harrow-on-the-Hill, exhibited a plant of *Cyrtanthus Tucki* (true) and a spike of *C. angustifolius aurantiacus*.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), Messrs. S. Courtauld, T. B. Haywood, J. Jacques, E. Hill, J. Douglas, R. Brooman-White, C. Pilcher, Hugh Low, H. Ballantine, H. M. Pollett, and Jas. O'Brien.

The display of Orchids was one of the smallest of the season, but was by no means devoid of interest. J. W. Temple, Esq., Leyswood, Groombridge (gardener, Mr. Bristow), exhibited a very handsome variety of *Cattleya Schröderæ* named *rosea*, noteworthy for great breadth of sepal and lip, with rich throat colouring; also *C. Schröderæ leyswoodiense* and *C. Skinneri Temple* var. Awards of merit were recommended for the two latter, and they are referred to below. J. Charlton Parr, Esq., Grappenhall Hayes, Warrington, exhibited the green and black *Cœlogyne pandurata*; the Rev. E. Handley, 19, Royal Crescent, Bath, showed *Lælia prestans*; A. W. Wells, Esq., a seedling *Cypripedium*; the Right Hon. J. Chamberlain, Highbury, Birmingham (grower, Mr. Burberry), two varieties of *Dendrobium superbiens*, one very rich in colour; and R. Young, Esq., two varieties of *Lælia majalis*, both beautiful forms, one being almost a mauve self and the other lighter in tone, flaked with purplish mauve in the lip. R. B. White, Esq., Arddaroch, received a cultural commendation for a collection of cut blooms, chiefly composed of *Cattleyas*, amongst which were several good forms. F. Wigan, Esq., Clare Lawn, East Sheen, exhibited *Dendrobium Leeanaum* var. *atropurpureum*; and C. J. Lucas, Esq., Warnham Court, Horsham, received a botanical certificate for *Sarcopodium Lobbi* var., a light yellow flower lined and dotted with pale brown. Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, showed *Dendrobium lineale*, a New Guinea species with long pseudo-bulbs and racemes of flowers which in general expression reminds of *D. Pierardi*, but smaller, sepals and petals pale lemon, lip lined with mauve. They also had *Cypripedium Eurylochus*, *C. Evenor*, and *Masdevallia caudato-estradae*, the two latter receiving awards of merit and being described below.

CERTIFICATES AND AWARDS.

Rose Lady Henry Grosvenor (Messrs. W. Paul & Son).—This is a Hybrid Tea of sterling merit. Three young plants were shown, and each had one bloom. When half expanded the buds are most beautiful, being perfect in form, and of a delicate blush pink colour. When expanded the blooms retain a good centre. The plants appear to have a robust constitution, producing fine dark green foliage (award of merit).

Pelargonium Arete (Messrs. J. Veitch & Sons).—This is a sport from *Volonté Nationale*, and is a particularly showy variety. The plants are dwarfer in habit than the type, and those shown were densely flowered. The flowers are semi-double, and produced in clusters. The petals are of a bright crimson body colour, white at the base, and similarly margined. The edges are also fimbriated (award of merit).

Pandanus pacificus (Messrs. J. Veitch & Sons).—This is a fine decorative plant. The specimen shown was sturdy in habit, and had dark green leaves 18 inches or so in length and 3 inches broad, tapering to a point, and armed with spines (first class certificate).

Wistaria sinensis alba (Messrs. J. Veitch & Sons).—If as robust as the type this is a valuable flowering shrub. The flowers are pure white, produced in long tapering racemes, and are deliciously fragrant (first class certificate).

Cattleya Schröderæ leyswoodiense (J. W. Temple, Esq.).—A beautiful form, the sepals and petals approaching pure white, the apical area of the lip also white and charmingly fringed, the throat deep orange, and edged with a band of mauve which extends to the exterior of the tube (award of merit).

Cattleya Skinneri Temple var. (J. W. Temple, Esq.).—A very fine variety with broad sepals, large flattened lip, and noteworthy for rich lustrous colour. It is an ennobled form of, rather than a distinct variation from, the type (award of merit).

Cattleya iricolor (Baron Schröder).—This was of special interest as being one of the parents of the two hybrids *C. Philo* and *C. Philo albi-flora*, recently exhibited by Messrs. Veitch & Sons. It is a very distinct species, being a small-growing form with short, flattened pseudo-bulbs and linear oblong leaves. The spike bore three flowers, sepals and petals ivory, the former very faintly suffused with rose. The lip is narrow, the apical area pure white, streaked with rosy purple towards the back; the throat and side lobes pale lemon with rosy purple streaks in the interior of the tube. The exterior of the tube is also blotched with rosy purple. The plant shown is the only one in the country (first-class certificate).

Cypripedium Evenor (Messrs. Veitch & Sons).—This is a hybrid between *C. bellatulum* and *C. Argus*, and displays a remarkable blending of the characters of the parents. In general expression the hybrid copies *C. bellatulum*, having the large petals, short lip, and

low dorsal sepal of that species, but the colouring is different. The base of the lip is dull greenish yellow, the upper portion brownish red. The petals are yellowish white, thickly dotted with purple, and the dorsal sepal is pale green, shading to flesh with lines of purple dots (award of merit).

Masdevallia caudato-estradae (Messrs. Veitch & Sons).—A hybrid obtained by crossing the two species named, of which *caudata* is the pollen parent. This is a small species of a uniform bright rosy purple with bronzy tails (award of merit).

Vanda teres alba (Lord Rothschild, Tring; gardener, Mr. E. Hill).—This is a beautiful and distinct form, the sepals, petals, and lip being pure white. The throat and tube are pale yellow. It is of slender growth, and bore but one flower (first-class certificate).

ROYAL BOTANIC SOCIETY.—MAY 18TH.

GLORIOUS weather favoured the opening of the Royal Botanic Society's early summer Show on the above date, and it was, therefore, little cause for surprise to note a large attendance. The Show was well up to the usual standard, and the principal exhibits are referred to as fully as time and space permit in the following notes.

Mr. C. Turner's famous *Pelargoniums* were as conspicuous as usual, the six Fancies with which he secured the first prize being large and very finely bloomed. His Show plants were also splendid specimens, although not quite so full of flower. From a decorative point of view this is no disadvantage, as a foil of foliage showing amongst the rich masses of bloom enhances their beauty. Mr. D. Baldwin, Hillington Heath, Uxbridge, was second in this class, and third with Fancies; Mr. D. Phillips, gardener to R. W. Mann, Esq., Slough, being second for the latter. He had some grand plants, though somewhat uneven. He was first in the amateurs' class with six Shows, but was much weaker here. Mr. Turner won with twelve greenhouse *Azaleas*, having neat half-specimens fairly bloomed; and Mr. H. James, West Norwood, was third. The latter won with six plants. Mr. A. Offer, gardener to J. Warren, Esq., Crawley, was placed first for six plants in 12-inch pots in the amateurs' classes, and also for larger specimens.

Stove and greenhouse plants made an effective display. Mr. J. F. Mould, Pewsey, won in the nurserymen's classes for six and twelve, his *Boronia heterophylla*, *Tremandra verticillata*, and *Dracophyllum gracile* in the former being grand plants, while he had a splendid *Pimelea mirabilis* and other fine plants in the latter. Mr. James was second in both classes. The latter won with six fine-foilage plants, but his collection was quite eclipsed by Mr. Offer's first prize six in the amateurs' section. *Croton Weismanni*, *C. Queen Victoria*, and *Anthurium magnificum* in the Crawley exhibitor's half dozen were models of good cultivation and vigorous health. Mr. Offer also won with six stove and greenhouse plants in the amateurs' section, and with six Ferns.

Roses were a beautiful feature of the Show. Messrs. Paul & Son, The Old Nurseries, Cheshunt, were placed first for a collection, and they certainly had a most delightful display. They were also awarded the first prize for nine plants beautifully bloomed. Messrs. Paul also showed to advantage in another direction, as they secured the first prize for a collection of Alpines, a somewhat small but very interesting display. Mr. T. S. Ware was placed second for a larger collection. With hardy herbaceous plants the tables were turned, Mr. Ware defeating the Cheshunt firm. Messrs. Offer & James won with *Dracenas*, while Mr. Mould was placed first for Cape Heaths, and Mr. James second. The latter was first for twelve exotic Orchids.

The miscellaneous exhibits were, as is usual at these Shows, numerous and fine. Mr. T. S. Ware had a splendid group of *Pæonies* and *Clivias* in the large marquee, for which he was deservedly awarded a silver medal; and in the corridor he had a brilliant collection of hardy cut flowers, among which were about 100 varieties of the late Darwin Tulips, a strain of breeders comprising many beautiful forms, and a small silver medal was recommended. Mr. J. R. Chard, Stoke Newington, exhibited table decorations. Messrs. Carter & Co., High Holborn, had a large collection of Cacti and succulent plants, many in bloom, and received a small silver medal, a similar honour being accorded to Messrs. Barr and Son, Covent Garden, for a large collection of cut flowers, comprising *Pæonies*, Tulips, Narcissi, Irises, and many others. Messrs. Carter and Co. also had a brilliant collection of their Emperor *Petunias*, an admirable strain, and were awarded a small silver medal. Mr. Turner received a silver medal for a bright display of Roses in pots. Mr. R. Scott had a group of plants, effectively arranged, for which a silver medal was recommended. Messrs. J. Veitch & Sons had an interesting display of new plants, the majority being submitted for certificates.

Orchids were represented by a small collection from Mr. W. May, gardener to F. C. Jacomb, Esq., Cheam Park, for which a small silver medal was recommended, and also by a beautiful display from Messrs. Hugh Low & Co., which well merited the silver medal awarded. Messrs. B. S. Williams & Son had a large group of miscellaneous plants, comprising *Azaleas*, *Amaryllises*, *Clivias*, and numerous Orchids. A small silver-gilt medal was recommended. Messrs. W. Cutbush & Son also had a mixed group of considerable dimensions and rich in bloom, for which they received a large silver medal. Messrs. W. Paul & Son's contribution from Waltham Cross was a magnificent display of Roses, a large bank of pot plants being flanked by numerous boxes of cut blooms. A small silver-gilt medal was recommended. A similar award was made to Messrs. J. Laing & Son for one of the best of the very fine mixed groups which they have exhibited. As usual, the arrangement was perfection.

NOTES ON GARDENIAS.

At the April meeting of the Sheffield, Hallamshire, and West Riding United Chrysanthemum Society Mr. W. J. Fuller, Exotic Nursery, Headingley, Leeds, read a brief paper on Gardenias.

Mr. Fuller is a large and most successful market grower of these plants. He first dealt with propagation, advising cuttings to be taken from half-ripened wood, giving preference to that which had grown in heat, not similar wood grown on plants placed in a cool house. Bottom heat was essential to root them, a compost of peat and sand being the most suitable at this stage of culture; afterwards the addition of a little decayed manure and charcoal was essential. Free growth was desirable, therefore a stove temperature was necessary, care being taken that the soil never approached dryness, or poor growth would result. Plants intended for specimens should be nipped into shape as they grow, never allowing any to flower until of a fair size.

The treatment of old plants was then referred to. After flowering, plants found to be needing further support were allowed to become moderately dry, placing them at the same time in a cooler house, where they were pruned back according to their strength. Almost immediately they were placed back again in a warm temperature, syringed freely and induced to break into fresh growth, when they were turned out of their pots and transferred to clean well drained pots in a good compost of loam, peat, manure, sand, and charcoal.

Gardenias required constantly syringing when in heat so as to have a moist atmosphere about them. They were not grown as plentifully as they ought to be, many people objecting to them because of their liability to the attacks of insects. Unhealthiness was generally the cause of this, a sour condition of the soil checking free root action and arresting growth, insects then establishing themselves. He once bought a number of very large Gardenias from 6 to 14 feet high, which were white over with mealy bug, literally covered from base to summit. They had been grown in a temperature of 80°. They were placed in a house to themselves, where they were turned out of the pots, the roots washed, also the stems, and the plants syringed four or five times a day with a special mixture. After persevering in this treatment for a time the plants were washed with clean water, potted, and grown as quickly as possible, being plunged in a brisk bottom heat in a bed of tan. He kept them well syringed with clean water, and once a week with the mixture. They grew remarkably well, breaking out from the old wood, and have since flowered freely. So clean were they kept that for four years in succession there was not a bug to be seen in the house. He had a large collection of Gardenias, and it was no unusual thing for him to cut eighty to one hundred dozen blooms per week, which he sent to different parts of the country. A vote of thanks was cordially passed to Mr. Fuller for his paper.

An attractive display of cut blooms formed an interesting feature at this meeting, prizes being awarded to several professionals and amateurs for meritorious exhibits; among which were examples of Roses, Orchids, Gardenias, Clivias, Rhododendrons, Camellias, Richardias, Hyacinths, Deutzias, Cinerarias, and Azaleas. Mr. John Haigh occupied the chair, and a fair number of members attended.



FRUIT FORCING.

PINES.—The prevalence of sunshine of late has had a far greater beneficial influence than the artificial heat it was necessary to apply for many weeks to keep the plants in steady progress, and it should be utilised to advance growth, having due regard to ventilation so as to secure a sturdy habit and the safety of the foliage. In sunny weather air-giving should be attended to early in the morning, dispelling moisture by that means from the leaves before the sun acts powerfully upon them, for when the moisture becomes heated it has a prejudicial effect on their tissues by impairing their elaborative power, and sometimes causes their serious disfigurement by scorching. Too much moisture, however, cannot be had within the house and about the plants provided care is given to the ventilation. In order to maintain a genial condition of the atmosphere freely moisten all available surfaces whenever they become dry. Especially is this necessary just before closing time, which should be sufficiently early in the afternoon to keep the temperature at 85° to 90° for a considerable time afterwards. Syringing will be needed daily in bright weather, regulating the moisture by the condition of the house and plants. The best criterion in the case of the plants is the axils of the leaves. Those should never be allowed to become quite dry during the growing season, because many feeding roots exist around the base of Pine plants which only derive support from the water in the axils of the leaves. An adequate supply of water must be given at the roots, not allowing any plant to suffer from want of it, but give some stimulating food, such as guano, taking care not to apply it too strong. A slight shade will be necessary to protect the leaves from the scorching rays of the sun, employing it only for an hour or two at mid-day. The

thinner the material the better so long as it suffices to prevent the sun scorching the leaves or fruit. Dispense with fire heat as much as possible, but a little will still be necessary in the succession as well as fruiting houses. Recently potted plants should have a liberal supply of heat; 90° to 95° at the base of the pots will induce roots to take hold of the soil quickly.

Fruiting Plants.—Those with the fruit in an advanced state require a moderately high temperature and moist atmosphere to secure large well finished examples, but ventilation must be strictly attended to, admitting air at the top of the house at 80°, maintaining the temperature through the day at 80° to 90°, 5° more with liberal ventilation, closing at 85°. Early closing, however, with too moist an atmosphere enlarges the crowns, which are generally large enough. Early and ample ventilation is also necessary to prevent the sun scorching the crowns and spoiling the appearance of the fruit. Examine the plants twice a week to see if they require water, applying it when required, using weak liquid manure up to the fruit commencing to ripen, then supply clear water only. Syringe the plants and house two or three times a week, employing fire heat to maintain the temperature at 70° by night and 75° by day. Keep the bottom heat steady at 85°, never less than 80°, nor above 90°. Plants from which the fruit is cut may be placed in a part of the house by themselves, keeping the suckers on them until the end of the month or early in June, when they may be potted together with those held in reserve from March. Potting the suckers as the fruit is cut entails constant attention, and is not necessary to a constant supply of fruit throughout the year. Only three batches of suckers are required to secure that, potting them in March, June, and September.

PEACHES AND NECTARINES.—*Early House.*—Trees of Alexander and Waterloo—the best early Peach, taking colour, weight, and quality into consideration—will now, or soon, be cleared of the fruit. The shoots on which the fruit has been produced should, if not required for extension, be cut away to the shoots that are to produce fruit next year. This admits light and air, and the foliage is more under the influence of water for cleansing purposes. Syringe forcibly to cleanse the foliage of red spider, and if this and scale continue troublesome promptly apply an insecticide. The foliage must be kept clean and healthy, and over-maturity or premature ripening of the wood guarded against by ventilating to the fullest extent after the fruit is gathered. Keep the borders moist, and in mild showery weather remove the roof-lights. Stop or remove gross laterals, but allow some growth, as too close suppression of the laterals has a tendency to hasten the ripening of the growths, and when this occurs the buds may swell through over-development when the trees should be going to rest. Trees of Hale's Early are now ripening the fruit, closely followed by Stirling Castle, a much finer Peach, and unequalled for general forcing. Early York and all of that race are too prone to cast the buds to render them suitable for early forcing, similar remarks applying to Early Grosse Mignonne. Grosse Mignonne, Noblesse, and all its race are notorious bud-casters when forced early. Royal George is a standard of excellence in retaining its buds and as a forcing Peach. Stirling Castle and Royal George are ripening, and must not be syringed, unless red spider appear, when a forcible syringing should be given on a fine morning. When water lodges for any length of time on the fruit its skin cracks, and mould infests the flesh, imparting to it an unpleasant flavour. Supply sufficient water to the roots to maintain the foliage in health, but avoid an excess in the soil and atmosphere, as it has a tendency to induce splitting at the stone in certain varieties.

Trees Started in January.—The fruit must be exposed to all the light possible, turning the leaves aside and raising it on laths placed across the trellis with its apex to the sun. This is apt to cause the fruit to ripen too fast on one side, but it may be prevented by placing a thin piece of paper over and just clear of the fruit in the hottest part of the day, so as to subdue the force of the sun. Maintain a circulation of air constantly by a gentle warmth in the hot-water pipes, keeping the temperature at 60° to 65° at night, and 70° to 75° by day artificially. Spare no effort to eradicate red spider before syringing ceases, as it should when the fruit commences to ripen, otherwise the pest will increase so rapidly as to prejudice next season's prospects by its ravages on the foliage. Thoroughly water inside borders, also outside ones if necessary, and supply a light mulch of lumpy manure, such as spent Mushroom bed material or partially decayed stable litter, keeping it moist.

Succession Houses.—Allow trees time to stone, not hurrying them or they may be so exhausted as to ripen the fruit prematurely if it be not cast in the process. Root action will be encouraged by a free retention of the laterals on weakly trees, and their removal on strong trees will somewhat check their activity; but these extensions and restrictions must not be excessive, or the fruit will be prejudicially affected. Avoid crowding the principal foliage, and keep insect pests in check by syringing the trees twice a day. Thin the fruits where too thickly placed, removing all surplus ones when stoned, and turn the others to the light so that they may colour well from the apex. Supply water or liquid manure to weakly trees, but do not feed vigorous trees, as that will only aid growth and hinder stoning. Admit air early and close in the afternoon with plenty of atmospheric moisture so as to raise the temperature to 80° or 85° when it is desired to accelerate the fruit, and ventilate a little afterwards for the night, so that the temperature may fall to between 60° and 65°. Maintain those temperatures by artificial means in the daytime; they will be ample until the stoning is completed.

Late Houses.—Avoid overcrowding. Train and tie in the young shoots that are to carry next year's crop, and allow them to extend as far as space admits. Stop or remove all gross shoots, and pinch side shoots that are not wanted for next year's bearing or for furnishing the trees. Thin the fruits, leaving only a few more than are required for the crop, and apportion the fruits to the vigour of the trees. One fruit to each square foot of trellis is ample for Peaches of the large varieties. Nectarines may be left at 9 inches. Syringe twice a day in fine weather, always sufficiently early in the afternoon to allow the foliage to become dry before night. If vigorous trees are dripping with moisture in the morning omit the afternoon syringing. Supply water when necessary, so as to moisten the soil down to the drainage. Ventilate before the sun acts powerfully on the foliage, and increase the ventilation with the sun heat, closing early if it is desired to accelerate the ripening of the fruit, but if wanted to ripen late admit air freely day and night. Young trees in course of formation will need disbudding, leaving the shoots for forming main branches 15 to 18 inches apart, and the bearing wood along them at a similar distance, training extensions their full length, and pinching the side shoots not required to extend to two or three leaves so as to form spurs. Pinch laterals at the first leaf, and subsequent growths to one joint as produced.

THE FLOWER GARDEN.

HERBACEOUS BORDERS.—Strong sunshine, cold winds, and frosty nights have not suited newly moved plants, and what they most require is a soaking rain and a few dull days after. Failing rain the watering pot ought to be freely used, this, or rainfall, being followed by a mulching of short manure, leaf soil, spent tan, or cocoa-nut fibre refuse. Unless these precautions are taken the chances are many of the newly divided plants will either be lost or grow and flower feebly. Light shade is often of great advantage after transplanting in bright weather.

THINNING SEEDLINGS.—Poppies and Mignonette have come up very thickly, and both kinds of plants must be very freely thinned out or they will not produce a good effect. Annuals generally pay for similar treatment, those thinly grown branching strongly and lasting much longer in flower than is the case when the plants are crowded.

BULBOUS-ROOTED PLANTS.—Most of these have flowered well, but from various causes have not lasted long. The most popular and serviceable of all are the Daffodils, Narcissi also giving much pleasure. As a rule they keep best and start the most strongly if they are left in the open ground, dividing and replanting about every third autumn. Their positions ought to be marked and the tops allowed to die down naturally. If they must be lifted, then wait till the tops are dead, and store the bulbs in dry sand and a cool place, replanting early in the autumn. Tulips may be treated much as advised for Daffodils, with a good prospect of some of them flowering next season. Hyacinths seldom form spikes after the first year, but if they are transferred to the borders and left undisturbed a good display may be forthcoming, the proper destination of those flowered in pots also being the mixed borders or bulb garden. Grape Hyacinths, Crocuses, Snowdrops, and Scillas ought to be left undisturbed for several years. Nor ought the early flowering Irises to be often disturbed, and if planted rather deeply shallow rooted summer flowering plants may be grown over them. If any of the bulbous-rooted plants must be moved from flower beds, then do it while the tops are green, saving a little soil about the roots, and replant thinly in good garden ground.

PREPARING FOR SUMMER BEDDING.—Many of the spring flowering plants will be past their best sooner than expected, and this in some respects is an advantage rather than otherwise. In all probability they will leave the ground in a dry impoverished state, and renovating measures will have to be taken or the start made by the next occupants will be a poor one. An over-rich root run is not desirable in the case of Zonal Pelargoniums, Petunias, Marguerites, Nasturtiums, Heliotrope, and Pyrethrum; but such hungry moisture-loving plants as Verbenas, Violas, Lobelias, Fuchsias, Calceolarias, and tuberous-rooted Begonias ought to be well prepared for. The last named cannot well have a too rich border or bed, and will repay for any extra trouble in the shape of manuring or mulching.

PLANTING BEDS.—Not till the first week in June ought much planting to be done; but it is unwise to defer the work of dividing and replanting the various hardy trailing plants used for either edging beds or filling in the groundwork of carpeting designs till the busy time arrives. Advantage should be taken of the first dull or showery period to fork up Sedums, Antennarias, Cerastiums, and such like, laying them on one side till the beds have been prepared for the principal occupants, and the edges set up or the designs marked out. Then pull the plants well to pieces, and dibble out the divisions rather thickly in preference to replanting in large patches. Give water and afford shade as may be needed. It is also advisable to plant out Violas as early as possible. If this showy class of plants are to be effective during the summer they ought not to be allowed to flower now. The ground being in a finely divided and by no means cold state, such annuals as Stocks, Asters, Phlox Drummondii, Godetias, and Gaillardias may well be put out rather earlier than usual, especially if they are becoming somewhat crowded where they now are. Moderately rich, freely worked ground suits them best, and slugs must be kept away from them.

THE KITCHEN GARDEN.

CELERY.—The more forward plants ought to be soon fit for the trenches, or if extra fine produce is desired early they will be better in

well prepared raised beds. Kept thickly together in boxes or frames they experience a check from which they are slow to recover. It pays well to shift the early raised plants that are to be grown for exhibition purposes into 6-inch pots, keeping them not far from the glass in a moderately warm house or pit. They ought to have a rich porous compost, and when well established in the fresh soil abundance of water. Moderately early and main crop plants should not be kept crowded in the seed boxes or beds, or they will move badly. Sturdy little plants are the best for pricking out, and if it can possibly be spared a portion at least of the requisite number should have the benefit of a frame to start afresh in. Stand shallow frames or form rough frames on a hard level bottom, and on this place a solid layer of short manure or decaying leaves and manure 4 inches thick. Face this over with 2 inches of sifted soil, and prick out the plants 4 inches apart and in straight lines each way, the better to admit of each being eventually moved with a solid square of soil and roots attached, these moving cleanly off the solid bottom. Give a gentle watering, keep close and shaded, frequently giving a sprinkling till the plants are growing strongly, when they should have plenty of air, and be finally planted out before they grow into each other.

PREPARING CELERY TRENCHES.—It is better for the Celery that the trenches be prepared some time before they are wanted, and getting them out early admits of the ridges or spaces between being profitably cropped with Kidney Beans, dwarf Peas, and Lettuces during the summer and early autumn months. Unless space is very limited the plan of preparing trenches from 12 inches to 15 inches wide to hold a single row of plants is the best. There is very little gained by planting double rows in trenches 18 inches wide with 4 feet spaces between, and the plants cannot be so simply and effectually moulded up as when grown rather more thickly, or say 10 inches apart in single lines. It is advisable to leave 4 feet spaces, 6 feet being none too much if a row of medium height Peas is grown (and they succeed remarkably well in such positions), this allowing fairly good room for cropping, and plenty of soil for moulding up the Celery later on. Make the ridges as flat as possible, and if need be a single central row of Kidney Beans and a row of Cabbage Lettuce on each side may be grown on some of them, and double rows of Cos Lettuce on others. The latter attain to a surprising great size and solidity on these ridges. Of the trenches, it need only be said that not more than half a spit of the top soil should be thrown out and evenly distributed on each side, it being a mistake to plant Celery deeply, especially where the subsoil is of a heavy, cold nature. Use solid, and not at all green, manure freely, well forking this into the trench, a little of the good soil being left on the top of it. Thus well prepared, the Celery can be put out quickly directly the plants are fit, and they are less likely, therefore, to be kept too long in frames or beds.

BRUSSELS SPROUTS.—If a plot of ground is prepared specially for these the plants may well be put out directly they are large enough to bear removal. The ground ought to have been freely manured and prior to being cropped should be made moderately firm and level. If moved direct from a seed bed or box plant with a dibber, but any that has been pricked out should be moved with soil about the roots and be replanted with a trowel, otherwise they will be a long time in recovering from the check. The stronger growers may safely and with advantage be put out 2 feet apart in rows 3 feet asunder, but Ne Plus Ultra, Paragon, and the Bullet succeed in rather less space. Where the plants are still standing thickly in seed beds, pans, or boxes no time should be lost in pricking them out on an open border 4 inches apart each way, but others raised more thinly in the open ground may be left where they are till 6 inches in height. Brussels Sprouts succeed admirably among rows of short-topped early Potatoes, the rows of the latter being 3 feet apart and moulded up before being cropped between.

EARLY BROCCOLI AND LATE CAULIFLOWERS.—It is hardly possible to grow too many of Veitch's Autumn Protecting Broccoli, it being a comparatively easy matter to keep up a good supply of this from September till February, and that in spite of its tenderness. Prick out a large number of the earliest raised plants on a warm border as advised in the case of Brussels Sprouts, and in due course move with trowels to good open ground, arranging the plants 30 inches apart each way. These will afford a good succession to the best of the Autumn Giant Cauliflower, the supply lasting, if some protection from frosts is afforded, till December. More plants being raised on an open border, and these duly transplanted to warm sites, in succession to Potatoes and Peas, a capital lot of produce will be had for storing in the autumn. Autumn Giant Cauliflowers being treated very similarly would also afford a continuous supply of good hearts from August nearly up to Christmas, but like the Broccoli, protection from frost is required.

TOMATOES.—If much-starved plants are turned out against walls or fences early in June they are so late in recovering that the chances are that disease will spoil the crops. Keeping them root-bound in 3-inch or slightly larger pots is simply ruinous to them, later raised smaller plants quickly surpassing such starvelings. Therefore shift small plants into 6-inch pots and feed those already strongly rooted in that size. In a light, warm, and airy position the plants will keep in a healthy, sturdy state, and most probably be either in flower or already furnished with a few fruits when finally planted out. Any to be bought in ought to be ordered early, especially if they are to travel by post, and these should be re-established in pots under glass before being planted out.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER.

WE have had only two nights during May up to the 13th free from frost. As much as 7° was twice registered, doing additional damage to the already scanty crop of Gooseberries. There has been as much as 45° difference between the day and night temperatures. The Sycamores, so promising a few weeks ago, have shed their flowers, and that will entail a loss to the bees, which owners will have to make up by feeding, or else fail to secure any surplus honey. But we are now getting the much-needed rain, and by "June all may be in a merry tune."

RAISING QUEENS.

The season for actual practical work is now here, and as successful bee-keeping depends greatly upon having a supply of queens to hand for three months the bee-keeper should turn his attention to securing this desideratum. How to form nuclei and dispose of them has been fully explained lately, so the attention of readers is turned to the other system of having virgin queens at all times during summer, as mentioned, but not fully explained, previously. It consists in starting with a queenless or swarmed stock, excising all queen cells about the ninth day of their existence, and placing them under tumblers or small bellglasses over queen-excluder zinc, when the bees immediately ascend, nurse, and attend to them. They will not swarm unless one cell or more has been overlooked, but in that case they will swarm—at least, they do so often when queens are caged over a stock having a queen. It is not desirable to keep these queens too long; it is therefore desirable that they should be taken away at fortnightly intervals, and at that time give several fresh combs containing eggs and brood, exchanging the same number containing unhatched brood from the one to the other. But if these be removed when a week old the results will be better, and they will be still further improved if two or more are kept for queen rearing in this fashion throughout the season.

It is perhaps unnecessary to go into details of how to utilise these young queens, there being so many modifications and plans; moreover, the subject has been well explained in this Journal for years back. Many have been racking their brains to find how best to mark the age of queens upon their wings up till four years old, although success in bee-keeping depends entirely upon having queens no older than one year. In managing hives with two queens better results will be secured if both are young, as old queens are liable to die or cease laying at the very time the hive ought to be at its best.

CARNIOLANS AND PUNICS.

The former have been so long favourites with me that it is with some degree of regret that I witness the latter surpassing them, but the results that will prove the superiority of either will not be known till the end of the season.

I am watching the movements of the Punics with interest, and I noticed them attacking the queen wasps in a manner I have never observed other varieties do—by darting at them and fighting with them in the air. I also observed that when working upon the catkins of the Willows they attacked the capsules containing the pollen with their mandibles and could at times get a supply when other varieties failed. Their crosses are the mildest tempered of any other crossed bees I have had experience of; but although the crossed ones are a little ahead of the pure ones, I attribute this more to the youthfulness of their queens than to the cross, as the pure bees work vigorously and tell sooner than others of a change in the weather.

HONEY PROSPECTS.

Owing to the great paucity of blossom of all kinds through frost the Clover will be the first and only honey-yielding flower till the Heather blooms. Where that has not been burned the prospects are good. The dry sunny weather we have had lately has started it, and already it has broken well. Wet weather prevents it growing and destroys it when in bloom. This is in answer to a Kirkcudbright bee-keeper, who had read the opposite in a contemporary.

SUPERS OR SECTIONS.

These fitted with foundation last year, and which the bees did not work, will be more readily taken to if exposed to the fire, warm

sunshine, or softened with warm water, just before giving them to the bees.

If a swarm issues from a hive not intended to swarm, place the swarm in the old stock's place, transfer the supers from it to the swarm, and if desirable a part of the combs, and re-queen with young queens as soon as possible.—A LANARKSHIRE BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books on Orchids and Landscape Gardening (*York*).—Williams's "Orchid Grower's Manual," published by Messrs. B. S. Williams and Son, Upper Holloway, London, N.; and Watson's "Orchids: Their Culture and Management," published by Mr. L. Upcott Gill, 170, Strand, London, will probably meet your requirements as regards Orchids. We do not know a better work on the formal architectural style of landscape gardening than "Loudon's Encyclopædia of Architecture," of which you may be able to get a copy from Mr. Wesley, bookseller, Essex Street, Strand, London, W.C. There is no recent work.

Alkali Works and Vegetation (*W. H.*).—The gases emitted from alkali works are highly destructive to vegetation, and some districts where they abound have a dismal appearance in consequence. Perhaps it might be well to inform the proprietors that they will be held responsible for any damage that may be done by sulphurous emanations.

Invisible Netting (*York*).—You have been told there is some extremely fine black netting to be had suitable for putting over carpet beds to keep the birds off, and have been given to understand the netting is so fine as to be practically invisible to the eye. You ask if we can tell you where such is to be obtained. We cannot, but as you are such a good amateur horticulturist we give this little advertisement in case any of our readers may be able to answer it.

Express Grape Growing (*James Watson*).—You ask if having Black Hamburg Grapes ripe in ninety days after starting the Vines is good work. It is quick work—quicker, indeed, than we should like to force Vines, though perhaps those in question were only intended to bear one crop, in pots; and possibly also the berries, though black, were not quite ripe. We have heard of express Cucumber growing, and we shall now, perhaps, hear what other gardeners have done in growing Grapes on the express system.

Flue Dust (*A. B. D.*).—If you desire to obtain the exact constituents of the dust you must send a sample to a professional analyst. If you do this we shall be surprised if it is found to possess any great fertilising value; it may, however, have a little, though we suspect its good effect on heavy land is chiefly mechanical. By all means use it where you find it beneficial, and you might also try it experimentally with a few plants in pots. You will find a few trials as useful as a chemical analysis, and far more economical, though we have not the least desire to dissuade you from the latter course.

Peaches Falling Prematurely (*H. H.*).—The fruits you have sent appear to be infested with a fungus. You say they have been gathered from a tree that has been planted two years; but as you observe "you have found them go at this stage in the same way for several years," we conclude that other trees are affected. We should have been glad if you had described the condition of the trees and border, also given a brief note on your management. They shall be carefully examined, but they arrived too late for this to be done before we go to press this week. In the meantime burn all the fruits that fall, and avoid a close damp atmosphere in the house.

Ermine Moth Caterpillars—Paris Green (*North London*).—Those are what you send, and the same post brought us the following from Mr. J. Hiam:—"Last summer we were told in the "Daily News" that the Apple trees in and around London were stripped of their foliage and fruit by the ermine moth caterpillars, and a friend told me in London a short time since that these pests were literally in heaps, climbing on one

another to try to regain their feeding ground, after being shaken down by the wind, as they are particularly sensitive to even a jar of the bough. Advantage might be taken of this peculiar habit in another way, by placing a sticky surface under the nest webs for them to fall upon when shaken. In Luton I was informed that the stems of the Apple trees were so thickly coated with their webs, in ascending time after time, that they closely resemble a coat of whitewash. No birds appear to relish this species of caterpillar—even the town sparrow despises them, and he would rather fly a mile for caterpillars of the winter moth and Oak leaf-rolling moth than notice these. Paris green, with a proper sprayer, which distributes it as fine as mist, and care to use the specified strength, taking care as to under crops in gardens, would soon restore the trees to their natural luxuriance." We may also add what Mr. Hiam says on the danger of Paris green on Apples—namely, "It requires to be handled with care for several reasons. The Evesham Fruit Pests Committee have made careful experiments the past two seasons, and so far as is known no injury has arisen from using it. By careful observation we found out that the winter moth caterpillars, which had been so destructive in 1888 and 1889, hatched out and commenced operations at once on the outside of fruit buds in the first week of April, instead of towards midsummer, as was generally supposed; and even to the present day many country people stick to the old notion that they come in the air in one of the so-called 'blight' clouds that occur occasionally in summer. The object of mentioning this is to show that precautions should be taken before the buds expand, and not wait until June. The great army of caterpillars may be killed before there is a possibility of even touching an Apple with the Paris green."

Tomatoes Decaying (J. B.).—The fruit sent are practically devoured by the destructive parasite *Cladosporium lycopersici*. This fungus causes the decay of the fruit. It begins with a minute black spot, which surrounds the small decaying style. The black spot gradually increases in size by new circles of growth, one beyond another in the

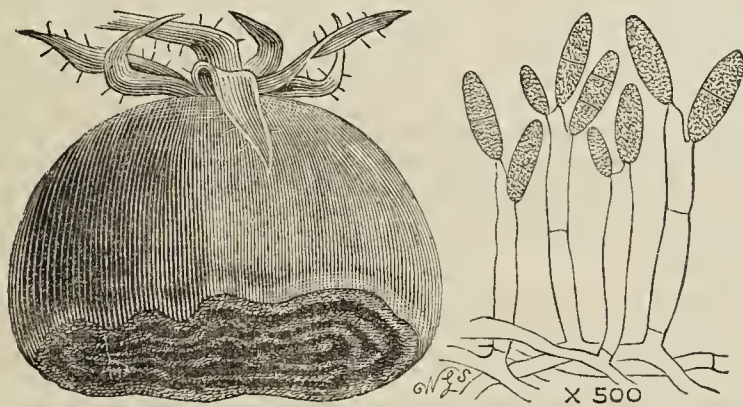


FIG. 67.

DISEASE OF TOMATOES AS CAUSED BY *CLADOSPORIUM LYCOPERSICI*.

style of fairy rings. The fungus growth at the same time flattens the apex of the fruit, till at last the whole substance is blackened and entirely destroyed by the *Cladosporium*. The fungus spreads from the leaves, also from one fruit to another, till at last leaves, stems, and fruits are all alike rotten. An illustration (fig. 67) is here given of a half destroyed fruit, also a view of the assailing fungus enlarged from the microscope 500 diameters. The brown spores of this *Cladosporium* are often produced in such enormous numbers upon both sides of the foliage that they fly from the leaves in millions. If the Tomato foliage is briskly touched a cloud of spores will taint the air and be distinctly perceptible in the mouth and lungs if they are inhaled. Most of the Tomato fungi are in their earlier stages quite superficial, so that if remedies are applied in good time recovery seems to be possible. Many recipes and suggestions have been printed of late in the *Journal of Horticulture*. All such fruits as you have sent should be gathered and burned, the house kept warm, dry, and well ventilated, and the ammoniacal solution of carbonate of copper remedy, mentioned on page 344 the week before last, may be tried. But the fungus ought to have been attacked sooner, and before it became so firmly established.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. R.).—1, *Amaryllis formosissima*; 2, *A. Tiarella*, send again when in flower; 3, *Chlorophytum orchidastrium*; 4, *Dielytra eximia*; 5, *Lunaria biennis* (Honesty); 6, *Trollius asiaticus*. (J. J. L.).—Three is *Streptosolon Jamesoni*. The numbers of the others were displaced. The Orchid is *Brassia verrucosa*, the other *Eupatorium rupestre*. (J. G.).—1, *Caltha palustris*; 2, *Kerria japonica*; 3, *Celsia arcturus*. (J. K. W.).—1, *Arnebia echioides*; 2, *Adonis vernalis*. (Thirty Years' Subscriber).—1, *Tecoma jasminoides* or *australis*; 2, *Maxillaria tenuifolia*. (I. S., Leeds).—You were right; it is *Odontoglossum Oerstedii*. (J. S.).—*Odontoglossum maculatum*. (Rathmore).—Insufficient for identification.

COVENT GARDEN MARKET.—MAY 18TH.

BUSINESS improving, but prices remain unaltered.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	to	5	0	Grapes, New, per lb. ..	3	6	to 4 0
Apples, Canada and Nova Scotia, per barrel ..	12	0		20	0	Lemons, case	10	0	15 0
Apples, Tasmanian, per case	7	0		12	0	Oranges, per 100 ..	4	0	9 0
						St. Michael Pines, each ..	3	0	6 0
						Strawberries, per lb. ..	1	0	4 0

VEGETABLES.

	s.	d.		s.	d.		s.	d.		s.	d.	
Beans, Kidney, per lb.	..	0	9	to	1	0	Mustard and Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0		0	0	Onions, bunch	0	3		0	5
Carrots, bunch	0	4		0	0	Parsley, dozen bunches	..	2	0	3	0
Cauliflowers, dozen	2	0		3	0	Parsnips, dozen .. ..	..	1	0	0	0
Celery, bundle	1	0		1	3	Potatoes, per cwt.	..	2	0	3	0
Coleworts, dozen bunches		2	0		4	0	Salsafy, bundle .. ..	..	1	0	1	6
Cucumbers, dozen	2	6		4	6	Scorzonera, bundle ..	..	1	6	0	0
Endive, dozen	1	3		1	6	Seakale, per basket ..	..	1	6	1	9
Herbs, bunch	0	3		0	0	Shallots, per lb. ..	..	0	3	0	0
Leeks, bunch	0	2		0	0	Spinach, bushel .. ..	..	3	0	3	6
Lettuce, dozen	1	3		1	9	Tomatoes, per lb.	..	0	4	2	0
Mushrooms, punnet	1	6		2	0	Turnips, bunch .. ..	..	0	0	0	4

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	4	0	Maidenhair Fern, dozen bunches	4	0	to	8	0
Bluebells, dozen bunches ..	0	9		1	0	Mignonette, 12 bunches ..	2	0		6	0
Bouvardias, bunch	0	6		1	0	Narciss (various), Scilly dozen bunches.. .. .	2	0		4	0
Carnations, 12 blooms ..	1	0		3	0	Pæonies, dozen blooms ..	1	0		2	0
Carnations, Malmaison, 12 blooms	2	0		6	0	Pansies, dozen bunches ..	1	0		2	0
Cineraria, dozen bunches..	6	0		9	0	Pelargoniums, 12 bunches	6	0		9	0
Cowslip, dozen bunches ..	1	0		1	6	" scarlet, 12 bunches	4	0		6	0
Daffodils (double), dozen bunches	2	0		4	0	Polyanthus, dozen bunches	1	0		2	0
Daffodils (single), doz. bch.	1	6		6	0	Primroses, dozen bunches	0	6		0	9
Eucharis, dozen	4	0		6	0	Primula (double) 12 sprays	0	6		0	9
Euphorbia jacquiniæflora dozen sprays	2	0		3	0	Roses (indoor), dozen ..	1	0		2	0
Freesia, dozen bunches ..	2	0		4	0	" Red, per doz. blooms..	2	0		4	0
Gardenias, per dozen ..	1	6		4	0	" Tea, white, dozen ..	1	0		3	0
Hyacinths, dozen spikes ..	1	0		2	0	" Yellow, dozen	2	0		6	0
" Dutch, per box ..	1	6		4	0	Spiræa, dozen bunches ..	4	0		6	0
Lilium longiflorum 12 blooms	2	6		4	0	Tuberose, 12 blooms.. ..	1	0		2	0
Lilium (various) dozen blooms	1	0		3	0	Tulips, dozen blooms.. ..	0	6		1	0
Lily of Valley, doz. sprays	0	6		0	10	White Lilac (French) per bunch.. .. .	4	0		5	0
" doz. bunches ..	4	0		12	0	Violet Parme, per bunch	2	6		3	6
Marguerites, 12 bunches ..	3	0		4	0	Violet, English, doz. bunch.	1	0		1	6
						Wallflowers, dozen bunches	2	0		4	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Genista, per dozen	6	0	to	10	0
Arum Lilies, per dozen ..	6	0		9	0	Geraniums, Ivy	6	0		9	0
Azalea, per plant	2	0		3	0	Lilac, each	2	0		3	6
Calceolarias, per dozen ..	6	0		9	0	Lily of the Valley, per pot	1	0		1	6
Cineraria, per dozen ..	4	0		8	0	Lobelia, per dozen	6	0		8	0
Cupressus, large plants, each	3	0		5	0	Lycopodiums, per dozen ..	3	0		4	0
Dracena terminalis, dozen	24	0		42	0	Marguerite Daisy, dozen ..	6	0		12	0
" viridis, dozen ..	12	0		24	0	Mignonette, per dozen ..	6	0		10	0
Erica various, per dozen ..	12	0		24	0	Musk, per dozen	3	0		6	0
" Willmoreana, dozen	12	0		18	0	Myrtles, dozen	6	0		9	0
Euonymus, var., dozen ..	6	0		18	0	Palms, in var., each	1	0		15	0
Evergreens, in var., dozen	6	0		24	0	" (specimens)	21	0		63	0
Ferns, in variety, dozen ..	4	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
" (small) per hundred	8	0		12	0	" per dozen	9	0		18	0
Ficus elastica, each	1	6		5	0	Rhodanthes, per dozen ..	6	0		8	0
Foliage plants, var., each ..	2	0		10	0	Saxifraga pyramidalis ..	1	6		2	0
Fuchsia, per dozen	6	0		12	0	Spiræa, per dozen	8	0		12	0

Bedding Plants in variety in pots and in boxes.



THE SHEEP TRADE.

EXPRESSIONS of wonder at the low price of sheep for such a long time are frequently heard, but puzzled flockmasters do not appear to be aware of the altered condition of trade which has brought this about; it may be usefully explained. Though the trade in home-reared sheep is still growing it does not keep pace with our requirements, nor are our growing wants met by a proportionate increase in importations of live sheep; on the contrary, there has been a steady decline for the last six years in the number of live sheep imported, till we have fallen from 1,039,000 in 1886 to 344,504 in 1891. Against this we have in the same period of time an increase by 4,500,000 in the number of sheep and lambs

enumerated annually in the Board of Trade Returns, but only an increase of about 2,000,000 in the number assumed to be slaughtered annually.

Now, though low prices would thus appear to have had a tendency to check the sale of home-reared sheep, they have not exercised a similar influence upon the frozen mutton trade, which grows at the rate of some hundreds of thousands of carcasses a year. It will continue growing, and must certainly be taken into account as an important factor in this matter. In their review of the frozen meat trade for 1891 Messrs. W. Weddel & Co. show that frozen mutton importations now represent from 15 to 20 per cent. of the total consumption of mutton in the United Kingdom. In 1880 the experiment was tried of sending 400 carcasses from Australia; this proved so successful that upwards of 17,000 carcasses were sent in the following year. The trade thus established grew apace, and spread to New Zealand, whence a consignment of 8839 carcasses came in 1882, the Argentine Republic joining in with more than twice that number in 1883, in which year New Zealand assumed the leading position in the trade, and she has held it ever since. The figures are so interesting that we append them in full.

Year.	From New Zealand.	From Argentine Republic.	From Australia.	From Falkland Islands.	Totals.
1880	—	—	400	—	400
1881	—	—	17,275	—	17,275
1882	8,839	—	57,256	—	66,095
1883	120,893	17,165	63,733	—	201,791
1884	412,349	108,823	111,745	—	632,917
1885	492,269	190,571	95,051	—	777,891
1886	655,888	434,699	66,960	30,000	1,187,547
1887	766,417	641,866	88,811	45,552	1,542,646
1888	939,231	924,003	112,214	—	1,975,448
1889	1,068,286	1,009,936	86,547	—	2,164,769
1890	1,533,393	1,196,531	207,984	10,168	2,948,076
1891	1,896,706	1,112,618	334,693	18,897	3,362,914

This is one of the sixteen tables given in the last number of the Journal of the Royal Agricultural Society of England, under the significant heading of "Statistics Affecting British Agricultural Interests." It shows clearly that the magnitude of the frozen meat trade affects agricultural interests in this country so seriously that its influence must have recognition. Though its tendency is to bring down prices, and to render all inferior sheep unprofitable, yet the fact remains that for prime fat home-bred sheep there is a good demand. It rests with the British farmer to see that his sheep are of this class. High breeding and high feeding have now become imperative with us. We must have early maturity and thoroughly practical intelligent management if sheep farming is to answer here still.

Let us glance at its importance. Not solely for the manufacture of so much prime mutton is it that the sheep holds such an important place on British farms. That is, of course, a primary consideration; but always in conjunction with it there is the economical and efficient application of manure to the land pressing upon our attention. Sheep are the best medium for this purpose at our disposal. The "golden hoofs" impart fertility wherever they go, but to do this thoroughly there must be good management. We must not only breed well and feed well, but we must shelter well. It is the men who half starve their sheep in winter, who make no provision of shelter whatever for the lambing, who never set a sheep fold, who purchase a few half-bred, half-fed ewe lambs or tegs for breeding purposes, and whose entire flock management is of a similar loose description, that are so loud in complaints of low prices. To have a few sheep on the farm is all right enough; see that it is done neither from custom or fancy, but in a true business manner. Not difficult is it to breed well, only pray remember that due care must be

given to the selection of animals. Avoid "bargains" at flock sales, they are anything but bargains in the end, and involve the buyer in much profitless trouble. Little and good must be the home flock-master's motto in future. Depend upon it a moderate number of well-bred healthy sheep kept going briskly from the first are always more profitable than twice the number of inferior underfed animals, whatever the state of trade may be. The trying condition of trade, brought about by the rapidity with which the importation of frozen mutton has grown and is growing, renders this a matter of urgent importance, worthy of our best attention and best efforts to give full effect to the important points we have thus indicated.

WORK ON THE HOME FARM.

Cold nights have retarded growth so much that graziers are at their wit's end, and so many of them have come to the end of cash in hand too that beasts and sheep have just been thrown upon the market for what they would bring in the way of money. Hayricks have so very generally been finished that hay ranges from £4 to £7 per ton, just as the case may be. Price but too often is anything but an indication of quality, rather is it an outcome of dire necessity. As usual, dishonest traders take advantage of such an emergency to foist inferior fodder upon needy customers. This has been the case more especially at the weekly market sales of hay brought there on waggons with worthless trusses in the centre of the load. Buyers of such "bargains" should also be on their guard against light weight. In two recent cases at a market sale one ton lot proved to be 19 and another 18 cwt. only.

The result of all this is a vast number of poverty-stricken store cattle and cows. Earnestly do we counsel prudence and watchfulness in bringing them upon a full bite. Begin moderately, using plenty of sound dry food either separately or chaffed, and crushed, to mix with green food. Do not suffer them to be out on any strong green growth at first, long enough to eat to repletion; rather gradually accustom them to it, or there will be losses among them. Already have we seen sheep suffering so severely from scour as to induce suspicions of fluke. It may only be due to the relaxing effect of succulent spring growth following a winter of scarcity. We saw some sheep-washing being done in the second week of this month while the nights were still frosty. Our own rule is to wait a reasonable length of time for warm nights in view of both health and comfort for the sheep, as well as to be able to shear the wool just when it is ready.

Spring corn is a full strong plant, especially upon light land; though cold nights have kept back growth, never was weather more favourable for keeping down weeds. Hoes have been at work to good purpose in the fields, and the first plant of Charlock is destroyed at any rate. Land sown with root crops has also had an extra turn with harrows, Couch Grass fires have burnt gaily, the land is clean, and is also a deep fine tilth. The seamy side, the weak point, is the very general prospect of a short crop of hay. Even from Ireland come lamentable reports of barren pastures, and such a scarcity of keep as has not been known for years. Now is seen the advantage of real pasture cultivation, for where the land is rich in fertility there is plenty of herbage, not quite so forward as usual, but wonderfully full and luxuriant in comparison with the ordinary poor pasture.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

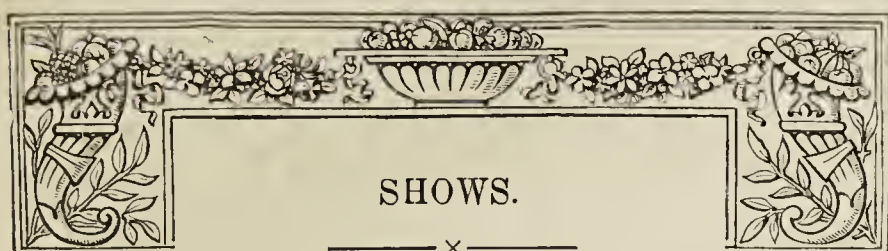
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
		Barometer at 32°, and Sea Level.	Hygrometer.		Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.		Direc- tion of Wind.	Max.	Min.	In Sun.		On Grass.
1892.										
May.										
Sunday .. 8		Inchs. 30.203	deg. 52.2	deg. 46.9	N.	deg. 46.1	deg. 66.7	deg. 39.4	deg. 107.4	Inchs. —
Monday .. 9		30.210	51.4	46.3	N.	47.4	66.4	39.1	94.9	31.3
Tuesday .. 10		30.205	59.1	49.0	E.	47.3	68.8	39.7	107.6	31.6
Wednesday 11		30.269	55.6	50.0	N.	48.8	72.4	41.5	119.9	36.6
Thursday .. 12		30.396	57.5	50.3	N.E.	50.2	73.9	41.7	115.1	38.4
Friday .. 13		30.286	60.1	50.0	N.	51.1	72.4	44.7	107.5	36.4
Saturday .. 14		30.076	58.9	51.7	W.	52.2	66.6	52.8	102.4	51.6
		30.235	56.4	49.2		49.0	69.6	42.7	107.8	36.7
										0.079

REMARKS.

- 8th.—Generally sunny and warm, but occasional cloud.
 9th.—Calm, with smoke fog till 10 A.M., and hazy morning; bright afternoon and evening.
 10th.—Sunny and warm.
 11th.—Bright sun throughout; temperature above 70° for the first time since April 4th.
 12th.—Warm and cloudless throughout.
 13th.—A little bright sunshine in morning, but the sun more or less obscured by cloud during most of the day.
 14th.—Sunny from about 1 P.M. to 4 P.M., but the rest of the day overcast and showery; bright night.

A fine week, and about 10° warmer than the previous one.—G. J. SYMONS.



AT more than one meeting, when the subject of a projected "exhibition" has been under discussion, the question has arisen whether that should be the term chosen as the objective, but it has been overruled in favour of the good old word, short and expressive—"show." The Royal Horticultural Society adopt the term, and when these lines appear the great annual Show of the Society will be arranged on the historic ground in the Temple Gardens on the Thames Embankment. Not a few persons who have travelled afar regard this as one of the finest sites in Europe, and it would certainly be difficult to find one more appropriate for the purpose, and in the heart, so to say, of a city of millions. On previous occasions the Temple Shows have been remarkable for their magnitude, diversified character and richness, but the fixtures have not been over-fortunate in respect to the weather. On the present occasion, though a more extensive, varied, and beautiful display can scarcely be expected than that of last year, yet brighter days are hoped for than have prevailed in the past, both in the interests of visitors and of the Society.

The grouping system adopted at these shows is advantageous to exhibitors, inasmuch as it enables them not only to exercise taste in arrangement, but to employ small as well as large plants. Thus new and rare examples can be brought before the public, and if they are less imposing they are more interesting than the large and old specimens; therefore we usually find most of what is best worth seeing, and a greater variety of plants and flowers, than is to be seen elsewhere.

We turn now to another Show, the name of which has been brought before the public from time to time—the International Fruit Show—as announced to be held on the Thames Embankment in the autumn. This project, though altogether laudable, was not commenced soon enough to be carried out in all requisite completeness, even if nothing of an exceptional nature were likely to occur to divert attention from it. But something is likely to occur, and the contingency had such weight with the Committee assembled in the Guildhall on Monday last, that after serious deliberation a decision was arrived at that will cause disappointment to many, though, of course, not to all. The Show is not to be held this year. After announcing the receipt of cheques from some of the City Companies, the Chairman, Sir James Whitehead, Bart., had also to announce the receipt of letters from many influential persons expressing their willingness to co-operate, but at the same time their inability in consequence of the absorbing nature of the General Election, which is held, whether rightly or wrongly, to be not far distant. The Chairman had also to add that under stress of duties of a public and business nature he was so "run down" that complete rest for as long as possible was ordered as imperative. He was compelled, therefore, to leave town for some time, and possibly until the political turmoil commenced. It was then felt, as if instinctively, by all present that it would be imprudent to continue the preparations in face of the obstacles indicated. Sir James Whitehead did not advise this course, though he was bound to admit the difficulties of the position, and he therefore requested each member present to express his views. In every instance they were in favour of a postponement of the Show. Mr. Haywood suggested

a resolution to that effect, but the prevailing unanimity led to the following resolution being put from the chair :—

"That in view of the concentration of public interest on the General Election and the consequent difficulty of making adequate arrangements for holding the Exhibition this year, and also in consideration of representations made by intending exhibitors that sufficient notice has not been given for preparations, it is resolved that the International Fruit Show shall be held in the autumn of 1893."

This was seconded by Mr. Philip Crowley, and carried *nem. con.* The gentlemen responsible for the decision were, besides those named, Messrs. A. H. Smee, H. R. Williams, T. Francis Rivers, George Paul, John Laing, B. Wynne, and J. Wright. Being in possession of the facts bearing on the case, and impressed at once with the certainty of a national upheaval, and at the same time the uncertainty of the time of its occurrence, each and all felt ample justification for their action. Many meetings have been held, and a great deal of preparatory work done, including the arrangement of the schedule; and it was not thought when the initiative was taken that events would happen to stop the progress of the work. Exhibitors have now ample time, for which many have been desirous, to prepare in the best manner they may for exhibiting their skill when the opportunity arises.

On this subject a digression may be made from a discussion on "Shows" to point out what is not generally known, and it is a fact of no small significance—namely, that so far from our land and climate precluding cultivators from competing successfully with Transatlantic rivals, American fruit growers are choosing and buying land in England for fruit growing on an extensive scale for supplying our markets, and they have no doubt their enterprise will be pecuniarily successful. In this innovation may be found food for reflection by the non-believers in the capacity of the soil of Britain to produce in creditable condition British fruit—a paradoxical proposition, and as such it is left for the consideration of all who are interested or concerned in the fruit-growing industry.

Though one Show of the season has fallen through, there are others in prospect. Before the week is out the first competitive display will be held in connection with the Horticultural Exhibition at Earl's Court, and its nature is briefly indicated in another column. It will be gathered from what is there stated that a comprehensive schedule has been arranged, and that the prizes are of an exceptionally liberal character. Should the response prove equal to expectations—and there is no reason to anticipate any other result—the Show will be one of unusual magnitude and beauty. It will be visited, no doubt, by many thousands of persons, including large numbers who are not specially interested in flowers, but who will be led by the pleasure and interest derived to pay closer attention to gardening than they have done hitherto. Still more Shows will follow there in due course, and there is no decrease in the number held in the provinces, while some of these, both as regards extent and quality, are equal in merit to National Exhibitions. At York, Shrewsbury, Wolverhampton, and various other centres, horticulture will be fully represented, and it is perhaps safe to say that no parallels to these Shows can be found on the continent. Yet the latter ought, according to the savants, to be far in advance of us, inasmuch as we have no "Schools of Horticulture;" but our best managed gardens and best representative Shows are really schools in which valuable lessons are taught, and so long as they are well supported we have not the remotest fear of the degeneracy of British gardeners.

Shows, too, of another kind, provided by and for another class, are increasing everywhere. We mean exhibitions of cottage garden and allotment produce. In districts where such shows have been established a few years the improvement manifested in the cultivation of the ground by the operative classes is little short of marvellous, and all endeavours to this end are deserving of the

fullest encouragement that can be extended by individual aid and grants from County Councils and other corporate bodies. It has been suggested that work of this nature should be placed under the control of some central body. No greater mistake could be made. It would deaden rivalry, which is the greatest of all stimulants to zealous endeavour, and the work which we desire to see make real progress would be held in the reins of red tape. But it will not come to pass, as the spirit of the times is in conflict with such ideas of centralisation.

BEDDING OUT.

By the time these lines are in print many gardeners who have empty beds to deal with will, perhaps, be pushing on with all possible speed the work of summer bedding. Those, however, who have both a spring and a summer display to provide will not, without sacrificing many of their plants when in full beauty, be able to get the whole of their beds replanted for some weeks to come. In order to derive the greatest amount of pleasure from this department of the garden it is necessary to do the work piecemeal, instead of making a clean sweep and then replanting.

The manner in which the work is best set about depends largely upon the kind of plants used for the spring display. Where Wallflowers, Myosotis, and Silenes are freely used after they are past their best they must of course be completely uprooted, and in a season like the present one the plants for providing the summer display cannot be planted out till late. But if they are well attended to in the way of watering, and, when properly hardened off, are placed thinly in an open position, they will be in full beauty almost as soon as others planted out much earlier. It fortunately happens that some of the grandest plants for spring bedding are equally effective for providing a summer display. I allude to Pansies and Violas. Many beds which were filled with these in autumn and early spring will not require replanting now, but if dotted with other plants, in a way I will presently describe, will in many instances command more than a passing share of admiration.

When spring and summer bedding are dovetailed into each other in this way the plans for both displays ought to be arranged at the same time, so that whenever any particular bed requires refilling the work can be done without any misgiving as to whether or not the right colour will be in the right place by the time the summer bedding is completed. To prepare Pansies to go through this long season of flowering the beds must be liberally treated in the autumn by giving them plenty of thoroughly decayed manure, a good sprinkling of soot, and by digging them deeply. With this sound preparation, and plenty of water at command during dry weather, these now popular flowers will go through this long campaign, and prove themselves to be both friends to gardeners and a source of great pleasure to their employers. Our beds were so arranged that those occupied by early spring flowering plants have already been planted with Calceolarias; others in which Silenes, Myosotis, and Wallflowers are now making a good show, will, as soon as possible, be filled with Zonal and Ivy-leaved Pelargoniums, Verbenas, Ageratums, Phlox Drummondii, and Begonias. These plants are now in sheltered positions where they can be kept growing steadily till wanted, when they will be planted thickly to produce an early display.

A few beds, in which Pansies are now making a fine show, will have a no more extensive alteration than is effected by planting around them a broad band of Golden Feather. This space was till recently occupied by yellow Crocuses. Other Pansy beds will be dotted with Fuchsias, Abutilons, Mrs. Perry and Mrs. Pollock Pelargoniums, Marguerites, and Acacia lophantha. Beds dotted in this way have a fine effect if they are surrounded by plenty of colour, but there are instances where flower beds have so many sombre hued trees and Yew hedges around them, or large expanses of green turf, that if bright masses of colour are not introduced rather freely the general effect, especially when viewed from a distance, lacks life and warmth. While, therefore, all should strive to avoid mere commonplace arrangements worked out in bright colours year after year with but little change, care should be taken that the result is not dullness instead of beauty. This will never be the case if the surface of the beds is broken at intervals with dot plants, and bright or subdued colours allowed to predominate in proportion to the presence or absence of them in the surroundings.

Where there are several groups of beds distinct features and an excellent effect may be produced by way of change if the various shades of one colour, or colours which are similar, are blended in one group. For instance, one set of beds may be planted entirely with different shades of blue and purple, with

edgings, bands, or masses of yellow and orange to divide them. Another set may be composed of scarlet and crimson relieved and separated with white, while in a third series of beds flowers bearing pink and rose shades with edgings of white and green, would produce a delightful effect.

I do not pretend to maintain that this method of arrangement lends itself easily to every kind of flower garden, but there are instances in which a lasting impression would be created if the plan were put into practice in a bold manner; and I hold the opinion that there is plenty of scope for producing original effects and achieving success by working on the lines indicated.—H. DUNKIN.

THE GENUS NARCISSUS NEAR BAYONNE.

(Continued from page 372.)

UNTIL Mr. Backhouse introduced Emperor and Empress about twenty years ago, perhaps the finest Trumpet Daffodil known to cultivators was the all-yellow maximus. I can find no mention of this by name earlier than Haworth's "Monograph of the Genus Narcissus," published in 1831. He seems to have considered it a development of cultivation, and to have had it from Holland, for he adds to his very brief description of it "*hortorum Batavorum*"—i.e., "of Dutch gardens." There is a bad figure of it in Sweet's "British Flower Garden," published in 1835, taken from a specimen in Haworth's garden, and Sweet had not seen it anywhere else; so we may conclude that it was about that time that it became known to English gardeners. But Mr. Burbidge has more than once called attention to some of the early figures of the great yellow Spanish Daffodil, especially those in Clusius and the "*Theatrum Floræ*," which represents a flower with the mouth of the trumpet much reflexed, as in the variety now called maximus, rather than in what we know as major—this last name amongst old writers perhaps including both forms.

As Clusius and Parkinson referred these large yellow Daffodils to Spain, it has been thought that they might be re-discovered there as wild plants; others believed that they were more likely to occur in Italy, where large wild Daffodils, some of them of the all-yellow class, have recently been found. About two years ago both maximus and major were sent from Bayonne, or rather from Biarritz, as "collected" bulbs. Improbable stories of their source were told, such as that they were brought across the frontier from Spain by smugglers, who used them to cover and conceal contraband goods in their panniers. Whilst I was at Biarritz I did all in my power to trace these bulbs; but none of the nurserymen or keepers of flower shops or market stalls either at Biarritz or at Bayonne seemed to know anything about them; and I doubt whether the sender of them, who had bought them from the collector, knew any more. In one garden only, about half way between Cambo and the Spanish frontier, I had seen a clump of them growing.

On my return one evening, nearly at the end of March, from a flower-hunting expedition, I was told that a strange woman had been to the hotel with a pannier full of enormous yellow Daffodil flowers which she had sold to the English visitors and had gone away again. The Daffodils were very large flowers of maximus, and had been out some time, but no one could tell me who the woman was or where she came from. However, at last I found out that she belonged to a village several miles beyond Bayonne, that she was a herbalist and collector of leeches, and that she had come across these Daffodils in her wanderings, and brought them to the likeliest market with her other wares. The day I arranged to visit the spot was so hopelessly wet that the expedition was deferred and no other opportunity occurred; but since my return home my cousin has visited the place, and a few bulbs with the leaves on have been sent to me. They are of enormous size and grow at a depth of about a foot in rather light boggy ground, in places presenting no appearance which would lead to the conclusion that they are of cultivated origin. I prefer not to indicate the precise spot, knowing the fate which has befallen other rare bulbs in that district. If asked whether I believe them to be indigenous there I own I feel a little sceptical, because large self yellow Daffodils are not commonly found in any part of that district. Besides the chief town of the neighbourhood, Bayonne, which is very frequently mentioned as a habitat for species of Narcissus, we find two other towns famous for the same flowers—namely, Peyrehorade, about twenty miles to the east, and Dax, about thirty miles to the north. Both these places are on the banks of the same river as Bayonne, the Adour, or its tributaries; both were important places in ancient times, and contained religious houses, in the grounds of which medicinal plants, amongst which Daffodils were important, are likely to have been grown. Still, there the bulbs are, and we may form our own conclusions about them.

The next species (*N. incomparabilis*) makes a conspicuous show in the flower markets both at Bayonne and at Biarritz in

early spring, especially the double forms. I do not recollect observing the pale double, called here Sulphur Crown; but the flowers of Orange Phoenix and Butter and Eggs are abundant everywhere for sale, coming in about the end of February. They are grown in the villa gardens and the peasants' vegetable grounds, as well as in all the nurseries; and next to the large double yellow seem to be the commonest of the genus in cultivation, and the greatest favourite with the French. But the natural history of the species is rather obscure. It occurs single in two or three forms, and is found in meadows, borders of vineyards, and such-like places, but never, like the pseudo-Narcissus, in woods. It is thought by French botanists to be a naturalised plant, and not indigenous, even if it is a true species at all. About two miles to the north of Bayonne is a peasant's plot, at the edge of which is a steep rough bank, not suited for cultivation, and this is crowded with several kinds of Narcissus, probably none of them native to the spot, though no one can remember the time when they were not there; at any rate, they live under protection, and I believe this is the case wherever *N. incomparabilis* occurs plentifully—namely, that it may not be gathered without leave of the proprietor of the farm.

The single form which grows on the bank I have mentioned has the crown deeply stained with orange. Mr. Barr says that it is identical with the variety to which he gives the name of Titan. I was told that the same grew at other places near Bayonne. The common single form was frequent in the market, and what were not from cultivated ground were said to be brought chiefly from meadows near Peyrehorade. I observe that Willkomm, in his "Flora of Spain," treats this species only as a hybrid form, and some other botanists have held the same opinion about it.—C. WOLLEY DOD.

(To be continued.)

NOTES ON HARDY FLOWERS.

GENTIANA ACAULIS.

GENTIANAS are among the most beautiful of hardy flowering plants. *G. acaulis* is the most common and generally grown, but is still none the less beautiful, having flowers of a deeper and more intense blue colour than can be found in almost any other genus. As an edging to beds and borders it is exceedingly attractive, forming a dense green carpet of foliage which makes a pleasing contrast to the bright blue flowers. These are produced in great profusion at the present season of the year. All Gentians are extremely sensitive of the root disturbance caused by their being divided or transplanted, consequently any that are established should be allowed to remain, unless their removal is an absolute necessity.

DORONICUM PLANTAGINEUM EXCELSUM.

This is, I think, one of the best hardy herbaceous plants. It is seen to the greatest advantage when planted in fair sized clumps at intervals on the herbaceous borders. It grows to a height of about 3 feet, producing its bright large yellow flowers freely during the month of May. It is also very useful for cutting purposes, lasting a long time in water.

FRITILLARIA IMPERIALIS.

This plant is very handsome and well worthy of a place in every mixed border, making a very effective display during the months of April and May. The flower stems rise to a height of 2 or 3 feet from the ground, and support at their summits a circle of bell-shaped flowers, about the size of ordinary Tulips, varying in colour from yellow to crimson, which are surmounted by a crown of leaves. *F. meleagris* (or the Snake's-head Lily) is also very attractive at this season of the year.

ARABISES AND AUBRIETIAS.

Most members of the genus *Arabis* are well adapted for rock-work and the Alpine garden, both from their natural hardiness and their early and profuse flowering. They are of the easiest possible culture in any dry soil. For a permanent edging or spring bedding they are amongst the best plants in cultivation. The *Aubrietias* are a comparatively small genus of beautiful hardy evergreen trailers. Being only about 4 inches in height, and of a creeping habit, they are admirably adapted for planting on rockwork. I think *A. Leichtlini* is far the most beautiful of them, and its rich crimson flowers are produced in such abundance at this season of the year as almost to conceal the plant. Where a stock of old plants exist layer the long slender shoots any time after flowering in sand and leaf soil; they will root freely and establish themselves in time for spring blooming, for which purpose, when grown in masses, they are most useful.

TRITELEIA UNIFLORA,

the spring Star-flower as it is more commonly called, is deserving of notice, its lovely bluish white star-shaped flowers being very effective during April and May. It is well adapted for planting in sheltered corners amongst short grass, and as the foliage dies down early in the summer the mowing is in no way interfered with; but although very pretty for a season or two it does not permanently hold its own under such conditions. It forms a good bulbous plant for pots, flowering profusely in the early spring. The flowers open in bright and remain nearly or quite closed in dull weather.—G. PARRANT, *Ashby St. Leger Lodge, Rugby.*



NATIONAL ROSE SOCIETY.

THE annual Report, list of members, and schedule of prizes for 1892, have just been issued, and will be read with much interest by all rosarians. "Seldom," says the Report, "have Rose growers, Rose exhibitors, or Rose exhibitions, had such a difficult year to contend against as that of 1891. Taking the country throughout, very great injuries were inflicted on Rose plants generally, and especially upon the Teas, by the severity of last winter, and the aggregate losses must have been considerable. The spring and summer also proved unseasonably cold and backward; in fact, so much so, that none but the earliest districts were well represented at either the Tea and Noisette Show at Westminster, or at the Metropolitan Exhibition. The first of these Shows, although a small one, contained several stands which were surprisingly good considering the season. The Crystal Palace Exhibition proved as extensive as usual, but, from the causes referred to above, the general quality of the flowers was necessarily below the average. On the other hand, the Exhibition held at Hereford nearly a fortnight later proved in every way a great success, and was, with one exception, the largest provincial Show the Society has yet held." The financial statement is very satisfactory, there being a balance of upwards of £40 on the year's working. The Tea and Noisette Exhibition will be held at the Drill Hall on June 21st; the Metropolitan Exhibition, at the Crystal Palace, on July 2nd; and the Provincial Exhibition, at Chester, on July 14th.

JUDGING ROSES.

I AM very sorry that, as I said at first, Mr. Biron and I cannot understand each other. I cannot make out the relation of his last letter to our former ones at all; but I should be glad to see a little discussion on another point in the subject of judging, of which I am reminded by the question, "Are we to give a point or points to such a Rose as a Charles Lefebvre, the size of Duchesse de Caylus?" I should say, "Treat it just as if it was a Duchesse de Caylus;" but believe some would not agree with me in this. They would say the Charles Lefebvre is undersized, but a Duchesse de Caylus of the same bulk would not be. This would not be judging all the blooms in one box by the one chosen standard, but having a separate standard for each variety; and this would be against the rules, which further hint that such a system should not be pursued by saying that no special favour should be shown to Teas.

I called attention to this subject two or three years ago in the Journal by relating that, when judging triplets of Teas on a certain occasion with a well-known judge, he gave a certain amount of points to a triplet of Jules Finger, which had passed to the horrid livid hue so characteristic of that variety. On my pointing out that the colour was positively ugly, while form and size were not first class, he replied "Oh, that is the nature of the beast!" And what I asked then without response, and now ask again, is, Are we to judge by our own chosen standard or are we further to consider "the nature of the beast?" I have heard it remarked in judging, "Oh, it is a good bloom for the sort," or, on the other hand, "Being the sort it is it ought to be better," and I think that such considerations ought to have no weight, and that beyond seeing there are no duplicates, and that the blooms are correctly named, we should in giving points pay no further heed to the varieties. We have chosen our standard, and if a bloom falls short of it it must take the consequences, whether the fault rests with the variety or the individual.—W. R. RAILLEM.

FADED ROSES.

MR. GEO. PAUL, writing from High Beech, Leighton, says: "If you think any of my opinions of sufficient value, by all means use them. The 'Year Book' is not here to hand, but I do not think that in my paper there I at all valued colour too highly. The question is this: A flower to be fit to be shown should be as far as possible perfect in some more or less degree in all three points—form, colour, and size. If it be defective in any of the three points it is a bad flower, and should count as such. Surely a flower out of shape (misshapen) of that particular sort is bad, surely a much undersized flower of a variety is bad—ergo, a flower of which the true colour is faded is bad. Some

kinds which lose colour slowly, such as cream-coloured Teas—for example, Alba Rosea; or full crimson, such as Marie Baumann; or bright yellow, such as Maréchal Niel, are, on that account, of much more value to the exhibitor than quickly fleeting colours such as Xavier Olibo and Horace Vernet . . . I should therefore adhere to my point, that a flower which, in the opinion of the judges, has lost its characteristic colour, is a bad flower. This should be the degree of fadedness for which you inquired."

I have only quoted such parts of Mr. G. Paul's letter as bear directly upon the point. He says much more in support of his views, but I think I have quoted enough to show plainly what he thinks. Now, here is my original difficulty perfectly plain. Mr. Raillem is of opinion, as I gather, that a flower of good form, no matter how faded it may be, deserves a point or points. Mr. G. Paul thinks that a flower which in the opinion of the judges has lost its characteristic colour, is a bad one and should be treated as such. Whose lead is to be followed by judges, Sproughton or Cheshunt? I, without hesitation, subscribe to the latter. Differing from my friend, "D., Deal," I think that time would be saved in judging if it were decided that a flower which in the opinion of the judges is a faded one should be utterly condemned. The instructions of the N.R.S. plainly point to this. There are other degrees of excellence or deficiency which may be dealt with according to points, but in all cases of decided badness, of which faded colour is one, I would utterly condemn the flower.

It is a very difficult matter to keep quite to one point in such a discussion as this, but I am anxious to escape the lash of "W. R. Raillem" if possible. I will apologise to him beforehand, as if I have wandered from the point of fadedness my erring has not been wilful. I think I have done with the matter now. The Rose season will, I hope, soon be on, and we shall then see by their decisions what the opinion of judges really is. I only wish, both as a judge and an exhibitor, that some more decided rule than is acted on at present could be laid down.—HENRY F. BIRON.

SOUVENIR D'UN AMI.

I DO not think that there is any better Rose for growing in a cool house, providing it gets proper treatment, than Souvenir d'un Ami, as I can testify from the quantity of blooms I have cut this season from an old tree which I am informed has been planted over twelve years. It is growing in a large round house with glass sides, without any heat except in very severe weather, when we have to resort to a small coke stove placed at one end of the house. The tree is trained close to the glass, so that it gets all the light available, and whenever the weather is genial the bottom sashes are either pushed up or the top ones pulled down, so that it has almost as much air playing among its branches as if it was outside, thoroughly ripening the wood, which is so essential to success. I have sent three blooms for your inspection.—HONINGTON.

[They are very neat blooms of a good old Rose.]

LIVERPOOL NOTES.

ODONTOGLOSSUM VEXILLARIUM AT AYMESTRY COURT, WOOLTON.

"YOU wo'n't flower them so well next season" was a remark made by many who saw the splendid show of vexillariums which Mr. Osborne, the able gardener to H. J. Robinson, Esq., had last year, and I must confess that I shared in that opinion. But if proof is wanted of what good care and attention can do it may be seen in the plants flowering not merely as well, but three times as well as last year, and it is questionable if (for the size of house) there is a finer batch of plants in the country. Imported a little over four years ago, the plants were potted into 3-inch pots. There are about eighteen plants at present in 5, 6, 7, and 8-inch pots, arranged amongst healthy plants of Maidenhair Fern. They have collectively 129 spikes, many of the stronger bulbs having four spikes each. A grand form of vexillarium roseum, admitted by travellers to be one of the finest in existence, is growing in an 8-inch pot. It had last year ninety-seven flowers. This season it has twenty-five spikes and just 200 flowers. The plants are never allowed to be in a temperature below 50° during the winter, and they have 60° to 75°, many times more during the summer. When in active growth weak applications of guano water are given; this seems to be a great factor to their well being. Judging from the healthy appearance of the plants they are likely to give the greatest amount of satisfaction for years to come. The term "cool Orchids," as applied to this class, seems to be a misnomer.

DEATH OF MR. A. R. COX.

By the death of Mr. A. R. Cox, after a brief illness, from pneumonia, Liverpool loses one of its most persevering and able gardeners. For the past thirteen years the deceased was head gardener to W. H. Watts, Esq., Elm Hall, Wavertree, and had previously worked in Yorkshire. As an exhibitor of almost all descriptions of plants, fruit, and vegetables Mr. Cox took very high honours, but perhaps his great successes were won with Chrysanthemums. Not only in Liverpool, but at most of the leading shows in England, has his name figured as a first prize winner. He has on two occasions secured the premier position for forty-eight cut blooms at Liverpool, winning a silver tea and coffee service and the silver cup. Last year he won the handsome silver challenge vase, valued at 20 guineas, and the cash prize presented by Messrs. Ker, Aigburth Nursery, for twelve incurved, twelve Japanese, and twelve reflexed, this vase having to be won two years in succession or three times in all. In addition he was second to Mr. Parker at Birmingham in the large class, in which there were sixteen lots staged,

and was successful in some of the minor classes. He was also conspicuously successful as an exhibitor of stove and greenhouse plants. At the winter meetings of the Liverpool Horticultural Association he was nearly always the recognised leader of a discussion, and was very seldom absent. It only seems the other day since he was in perfect health, and in a vigorous speech urging the members to keep to their old dates for the Summer Show. Afterwards he was speaking of the hopes he entertained of his success at that as well as the Autumn Show, and little did I think in my conversation with him that those hopes would be so soon shattered, and his useful work so soon close. Though at times his speeches had rather a sarcastic tinge, yet underneath was evident a kindly and generous disposition. He was greatly respected by Mr. and Mrs. Watts, as well as by the majority of those in the horticultural world to whom he was known. That a great loss in our ranks has been sustained is the feeling of all gardeners here. He was buried on the 13th inst., a large number of horticulturists being present. The deceased, who was forty-one years of age, leaves a widow and five young children.

CUCUMBER DICKSON'S EXCELSIOR.

When visiting the gardens at Roby Hall recently I was much interested in this grand new variety, sent out by Dicksons, Limited, Chester. At any season of the year Cucumbers are to be seen fruiting, and a sterling variety which Mr. Jones has grown for a number of years has always had a good word from everyone. But it is entirely superseded by Excelsior, of which there were six plants in a house 16 feet long. We measured twenty fine fruits, all over 18 inches in length, some exceeding 24 inches, which were hanging at the time of my visit, and Mr. Jones informed me that he had cut four dozen the previous week. Fruits of various sizes were showing, and I counted on many joints from five to seven fruits. It is a robust grower. The fruits are dark green and perfectly straight from the handle, there being no waste. If it is prolific as a winter fruiter it will certainly oust many of the older varieties altogether and take a foremost position. Many of the so-called new varieties have very few points of merit superior to the older ones, but as this appears to be such a distinct gain, I could not refrain from sending a few lines regarding it. It is a cross between Kirklees Hall Defiance and Hamilton's Invincible.—R. P. R.

ROYAL HORTICULTURAL SOCIETY.

MAY 17TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair), Mr. Morris, Mr. McLachlan, the Rev. W. Wilks, and the Rev. G. Henslow, Hon. Sec.

Orchids Attacked by Beetles.—With reference to the case brought before the last meeting, Mr. Pascoe reported that the beetles were Phytophaga, belonging, he believed, to the genus Galeruca. Although they were on imported Orchids, he considered them like an English species.

Basal Rot.—Mr. Michael reported on this subject as follows:—"I have examined the Narcissus bulbs sent up by Mr. W. Dod, and affected with 'basal rot.' The bulbs looked rather gnawed, and I found one or two Rhizoglyphus echinopus on one of them; but, in spite of the destructive character of this mite, it hardly seemed to me that there were enough to have done the damage. The bulbs were decayed just at the base and nowhere else. There was fungus there, and they looked to me rather as if from some cause water had collected just round the base of the bulb, and had caused a sodden and unhealthy condition. I also examined some 'rusty' Narcissus bulbs, sent by Mr. Haydon, of Hatfield Vicarage, Doncaster, and received by me from Mr. Morris, of Kew. These bulbs were swarming with the same acarus (Rhizoglyphus echinopus), which is quite capable of originating the destruction seen in the bulbs, and of carrying it out, with the assistance of the decay which naturally sets in on the wounded surfaces where the mites have been eating. The bulbs also contained Anguillulae. I believe some species of these are originators, some followers of decay. The Rhizoglyphus, however, is quite sufficient to have done the damage, whether the worms assisted or not." Mr. Morris observed that, in the case of the "rusty" bulbs forwarded to Mr. Michael by him, they were carefully examined by fungologists at Kew, and no fungus was present, as in those sent by Mr. Dod. Mr. Haydon mentions in his letter to Mr. Morris that three were seedlings from Cambricus; the others were a variety called Miriam Barton. The rusted cernuus had been all burnt. Mr. W. Dod has written to observe that there was a mistake in the report of the last meeting, in that Tröilus is not a variety which is subject to basal rot. His words were:—"I enclose specimens belonging, in this case, to the variety Tröilus, which show how thousands go off with me every year." He now writes:—"I meant to say that thousands of Trumpet Daffodils of different varieties die in my garden every year, showing the symptoms, of which I sent bulbs of Tröilus as an illustration."

China Silk.—Mr. Morris exhibited a specimen of this so-called material having the appearance of fine cat-gut, and read a report from the Foreign Office as follows:—"A very strong 'silk' is made from the grub called the 'celestial silkworm' (t'yn ts'am), or locally 'paddy insect' (din t'ang). This grub is found on a sort of Maple, the Fêng tree, or Liquidambar formosana, Salisb. When the insect is full grown it is thrown into boiling vinegar, on which the 'head' of the gut or 'silk' appears. This is sharply torn out with both hands drawn apart,

and is as long as the space between them—say 5 feet. It is so strong that one single thread of it is sufficient to make a line with which to catch the smaller kinds of fish."

Hellebore with Curled Leaves.—Mr. Dod sent leaves of *H. niger*, var. *maximus* with the segments of the leaves inrolled, so as to form closed tubes. He writes as follows—"Can you suggest any reason for the curling up of the leaves? It takes place every year, and in some plants it seems to be spreading. They do not recover from it, the whole growth, including the flowering, is deteriorated. The plants most affected are in a border under glass, but not heated, but it occurs on those out of doors as well. I have tried more water, less water, top-dressing, syringing, insecticides, anti-mildew, smoking, &c., but ineffectually. I can never see any insects on the leaves." The only suggestions the Committee could offer were, either the possible attempt to protect the upper surfaces from the chill due to radiation, as is the prevailing habit with leaves generally when unfolding from the buds; or, since the undeveloped leaves of some other Ranunculaceous plants, as *Pæonia Moutan*, have the edges of the segments partially inverted, it may arise from an arrested condition of growth, the margin becoming more and more inrolled as they grow.

Monstrous Fuchsia.—Mr. Morris exhibited a spray from Kew, one flower being hypertrophied, apparently from synanthly or a fusion with another, while the other was somewhat atrophied in having only three sepals, as is often the case with the first flowers that expand in the *Fuchsia*.

Tea Plant Diseased.—Mr. McLachlan showed a specimen badly attacked by some mycelium received from Assam. It was forwarded to Kew for examination.

Ficus elastica Fruiting.—Mr. Wythes sent a fine spray of this plant with several fruits upon it. Unlike ordinary Figs this species bears very diminutive fruit. It is not often known to produce them in this country.

Cephalotaxus.—Dr. M. T. Masters exhibited a bough, showing the leaves partly spreading around the stem in all directions and partly pseudo-distichous; the first form has been called "*Harringtoni*," &c., but it is (like the Irish Yew) merely an accidental occurrence.

Tsuga Albertiana.—He also showed a bough of this plant bearing male flowers, which are not often to be seen.

Odontoglossum crispum.—A flowering branch was received from Mr. Bull, all the flowers being apparently abnormal. In one examined by the Secretary the two posterior sepals were coherent, the third was wanting; the three petals were present, but all alike except in size. The two posterior of the three stamens of the outer whorl were present; but the anterior, and all three of the inner whorl, were suppressed. The three carpels were present, but the ovary chamber was greatly distorted, the placenta, usually prominent, not being traceable; the stigmatic depression was nearly obsolete. The above details were traceable by means of the distribution of the vascular cords. There appeared, therefore, to have been a tendency to suppression along the median plane.

Cypripedium caudatum Reversed.—Mr. Douglas sent a branch with two blossoms; one was normal, the other completely reversed, showing the correct position of the labellum, which is ordinarily upside down.

Tulip Fasciated.—Dr. Masters exhibited a specimen of a Tulip, having three smaller-flowered peduncles adherent to it. Not having the bulb it could not be seen whether the smaller Tulips arose from lateral bulbs, or whether the whole was a multiplication of the main stem.

FRUIT PROSPECTS IN NORTH SUFFOLK.

AFTER residing for some years in the Evesham Parliamentary Division of Worcestershire I have found a temporary home in East Anglia. The contrast is extreme. That part of Worcestershire through which the River Avon flows is in summer rather relaxing. Vegetation is forward in the spring; a very large trade is carried on in early vegetables, Manchester being perhaps the biggest customer. In East Anglia the air is very strong and bracing, the season much later. Each district has its advantages and its disadvantages. I read in the Journal a month ago a communication from one of the Evesham fruit growers in which he stated that the frosts had played havoc with the Plum blossom, and that he anticipated but a very poor crop of fruit. Here the Plum blossom was quite a fortnight later; in fact, it was but yesterday's (20th May) rain that cleared the trees of the remaining white petals. Consequently we have an immense crop of fruit set. I shall have to thin very considerably, and next week shall assist the heavily burdened trees with weak liquid manure. Green Gages, too, are very promising.

I was talking yesterday to a large market gardener and fruit grower on the subject of the local fruit prospects, and he told me that from what he had himself seen and from what he had been able to gather from conversations with others of his craft, the crop of small fruits—Gooseberries, Currants, &c.—would be immense; but that Apples were unequal, the earlier kinds showing but little blossom, while the late or winter sorts, both dessert and culinary, were quite up to the average. As regards the thirty or less trees in my own garden I can quite bear out this opinion. Raspberries, too, look well, and are growing fast with healthy looking foliage. Cherries are very full of bloom, and the fruit is setting well; this is the case especially with the May Duke. On the whole, then, our fruit prospects on the borderland of Suffolk and Norfolk would appear to be quite up to, if not above the average.—J. A. W.

SARMIENTA REPENS.

SARMIENTA REPENS is the sole representative of a Chilean genus of Gesneraceæ. It is curious that many plants from Chili have pendulous flowers of a red or scarlet colour, such as *Lapageria rosea* and *Fuehsia*, and *Sarmienta repens* is no exception, the flowers being scarlet and pendulous. The stems are long and slender, straggling over the ground and rooting at the nodes. The leaves are about half an inch long, ovate and fleshy, the upper surface dark green. The peduncles, which are about $1\frac{1}{2}$ inch long, carry one flower. The sepals are very small, and have many white hairs on them; the corolla is about an inch long, tubular, constricted at the throat and spreading at the mouth. Two of the stamens are half an inch longer than the corolla, and when carrying their yellow anthers add largely to the beauty of the plant. *Sarmienta repens* does well in baskets in peat, sphagnum, and a few pieces of sandstone; an *Odontoglossum*



FIG. 68.—SARMIENTA REPENS.

house suits it well, as plants now flowering in the cool Orchid house at Kew show. This interesting plant was introduced by Messrs. Veitch, but is rarely seen in cultivation. Care should be taken not to overwater during the winter. Its graceful habit and beautifully coloured flowers should win for it more extensive cultivation.—C. K.

AIR ROOTS ON VINES.

IN reply to "Inquirer" on the above subject, I am able to state that, according to my experience, no injury to the Vines is likely to follow if the roots are cut away. I should not hesitate to do so; in fact, I think it a good plan to keep the roots in check by rubbing them off as they appear, because if it is true, as some gardeners say, that their growth encourages the flow of sap at a time when the Vine is most in need of it (a matter on which I have a doubt), a check is sure to follow from the roots dying off as the atmosphere of the house becomes dry from the necessity of different treatment. "Inquirer" may be in some degree right when he attributes their growth to atmospheric moisture, but I am of opinion that there are other and more serious reasons (though not insurmountable) working in favour of their growth. I believe it to be a sign of defective root action, or perhaps I should say that, as it occurs in early forcing vineries more than others, the roots are inactive, or at least not moving sufficiently to keep pace with the demand made upon them by the development of the growth inside. If it is so the suggestion is to provide a better rooting medium.—THOMAS RECORD.



EVENTS OF THE WEEK.—To-day (May 26th) the Royal Horticultural Society's Show in the Inner Temple Gardens is continued and concluded. A great Show will be held at the International Horticultural Exhibition, Earl's Court, on the 27th and 28th. Fuller information is given below. A meeting of the Royal Botanic Society will be held on the 28th.

— **THE WEATHER IN LONDON.**—The prognostication of fine weather in last week's Journal appeared likely to be discounted, as rain fell on Thursday evening, but the fall was light and of short duration, the weather settling down again on the following day. On the 20th some little damage was caused by the heavy west wind. The 21st, 22nd, 23rd, and 24th were hot and dry. At the time of going to press the wind is in the south-east and the weather unsettled, one or two heavy showers having fallen. Rain is badly wanted in the south, freshly planted trees flagging, while bedding plants are awaiting moisture for being placed in the soil.

— **NATIONAL TULIP SHOW.**—We are informed that this Show will be held in the Botanical Gardens, Manchester, on June 8th.

— **LILIES OF THE VALLEY.**—Messrs. Hawkins & Bennett send us their annual offering of Lilies of the Valley, two beautiful bunches of the varieties Jubilee and Victoria. Both are of large size, pure, and fragrant, with long stalks and well-developed leafage. They mark a striking advance on the old form.

— **EXPRESS GRAPE FORCING.**—I see in last week's Journal (page 386) that a bunch of Black Hamburgh Grapes is alleged to have been ripened in ninety days from starting the Vines. Perhaps Mr. Watson intended to say 191 days, and I hope he will be able to obtain and supply particulars of the treatment that produced such results in what you describe as "Express culture." Can Mr. Watson send a bunch to the Editor?—W. BROWN.

— **CHELTENHAM FLOWER SHOW.**—The spring Show of the County of Gloucester and Cheltenham Royal Horticultural Society was held, in beautiful weather, at the Montpellier Gardens, Cheltenham. There was a slight falling off in the number of exhibits, but the quality of the plants and flowers staged was quite up to the average, and, indeed, was—particularly in the case of the Azaleas and Calceolarias—above it. The principal features of the Exhibition were the grand collections of foliage plants from Mr. Cypher, Messrs. Heath & Son, and Mr. Mould of Pewsey. There was also a splendid display of Orchids. Gloxinias were also good, and the Roses were much admired.

— **A NEW LONDON MARKET.**—Monday, the 13th of next month is the date fixed for the opening, by the Lord Mayor, of the new fruit, vegetable, and flower section of the London Central Markets at Smithfield, which has just been erected by the Corporation. The market has railway accommodation beneath, and completes the series of central markets erected under Act of Parliament by the Corporation. The Markets Committee meet on Monday to allot space for applicants for standings. The charge is 1½d. per foot super per week, but a rebate will be allowed for the first year of one-half, and the second year of one-third, the full rental coming into operation in the third year. There are other charges for waggon and cart stands and pitchings.

— **MR. SMEE'S GARDEN.**—Mr. Smee's garden at Hackbridge is picturesque by its pleasing naturalness. It is seen to advantage at this season of the year, when flowering shrubs and trees, including Apples, are in full beauty, and Ferns are producing luxuriant fronds in dells and clothing the banks of rushing streams. The Cattleya house is gay with splendid forms of Mossiae and Wagneri, and noticeable in another structure is the Stanhopea-like Orchid Acineta Humboldtii, bearing densely spotted flowers. The collection also contains many curios, among them Masdevallia oethoides is notable from the fact that it has been flowering continuously for eleven years. As the gardens are to be open to the public in the course of a week Orchids are not removed for exhibition at the Temple or other shows. The gardens are in the highest degree creditable to Mr. G. W. Cummins, who is evidently well master of his work in every department.

— **SPRING DROUGHT.**—The last issue of Symons's "Meteorological Magazine" contains a number of letters respecting the exceptional dryness during the present spring.

— **BEDFORD AND BEDFORDSHIRE HORTICULTURAL SOCIETY.**—The ninth annual Show of this Society will be held in a field at Goldington Road, Bedford, on Wednesday, July 13th, and the schedule has just been issued.

— **THE CHESTNUT TREES IN BUSHEY PARK** are now in full bloom, and there are few more beautiful sights than the long avenue of trees laden with snowy blossom. Anyone in the neighbourhood, or visiting Hampton Court, should inspect it.

— **CHEADLE HORTICULTURAL SOCIETY.**—The twenty-fifth Show of this Society is announced to be held on August 12th and 13th. The schedule is full and varied, the chief prizes offered being £15, £10, and £5, for twelve stove or greenhouse plants. There are also other good prizes in the open classes.

— **SHANKS' LAWN MOWERS.**—A handsome stand has been fitted up at the International Horticultural Exhibition by Messrs. A. Shanks and Co., and their excellent "Standard" machines, which deservedly enjoy great popularity, are on view, affording an opportunity for any visitor to become acquainted with their good points.

— **A GIGANTIC CAMELLIA.**—A Welsh paper says that one of the largest Camellia trees in Europe is that which is just now in full bloom at Pillnitz near Dresden, and forms one of the sights of the district. It was imported from Japan about 150 years ago, is about 17 yards high, and has an annual average of 40,000 blossoms.

— **SWAINSONIA GALEGIFOLIA ALBA.**—"J. B." writes:—"In the well-kept gardens of Barton Court, Kintbury, Berks, Mr. W. Young, the gardener there, had on a recent visit a wonderfully well-flowered example of this now seldom seen greenhouse plant. It deserves a place in every such structure, thriving in a mixture of sandy loam and peat."

— **PANSIES AND VIOLAS FOR BEDDING.**—Mr. H. Dunkin sends a box of Fancy Pansies and Violas to show what admirable plants they are for bedding. He refers to them more fully in his article on another page. They are a bright, fresh, and varied assortment, and it is gratifying to observe that their use for the purpose recommended is rapidly spreading.

— **LEDUM THYMIFOLIA.**—This dwarf-growing American plant is now very pretty in the shrubbery. The plants are dwarf in growth, thickly set with clusters of rosy pink flowers. It is quite a gem among a particularly interesting class of plants. This Ledum would be quite suitable for the rockery, and would last many years in a limited space, the growth not being rapid; but it never fails to produce abundance of its showy blossoms.—E. M.

— **ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.**—Fine weather favoured the spring Show of this Society, and it proved to be of more than ordinary merit. A fine display of Orchids from the Duke of Marlborough's splendid collection was greatly admired, and Auricula lovers found food for interest in a collection from Mr. C. Turner. Mr. John Mattock, Mr. Walker of Thame, Mr. J. Johnson, and Mr. J. Parsons were to the fore with plants and cut flowers, but Mr. Joseph Lakin won with florists' Tulips.

— **A GREAT SHOW AT EARL'S COURT.**—The first of the great Shows in connection with the International Horticultural Exhibition at Earl's Court will be held on Friday and Saturday, May 27th and 28th. In all probability it will be a most extensive and beautiful display. There are fifty-eight classes for plants, seven for cut flowers, eighteen for fruit, and nine for preserved fruits and vegetables. At the head of the list in the first section is a class for twelve stove and greenhouse plants in flower, with prizes of £12, £8, and £6; then £8, £5, and £3 are offered for twenty Roses in pots, with similar awards for groups of Roses. For ten exotic Orchids in flower the prizes are £10, £8, and £6; for a group of plants (nurserymen), £20, £15, and £10; (amateurs), £15, £12, and £8. These and other classes embrace a considerable number of indoor and outdoor plants. Handsome prizes are offered in the other sections. If the response is as free as the prizes are liberal this Show should be a magnificent one, well worth visiting by anyone. Lovers of music may be interested to hear that they will have an opportunity of listening to the famous "Garde Republicaine" band on the occasion, as well as that of the Grenadier Guards.

— A CURIOUS EXHIBIT AT THE WORLD'S FAIR.—A unique exhibit from Pennsylvania will be a map of the United States, 18 by 24 feet, made entirely of pickles, vegetables, fruit, &c., preserved by the Company which makes the exhibit. The State lines will be accurately shown, and the lakes and rivers will be represented by vinegar. The larger cities will be indicated by spices. The whole will be covered with a single piece of plate glass, which is being specially made for the purpose. The expense of this interesting exhibit of the pickling and preserving industry will be 15,000 dollars.

— NARCISSI ON GRASS.—One of the most attractive forms of outdoor gardening at the present time is that where a quantity of *Narcissus biflorus* and the Pheasant's Eye variety are growing in grass the white flowers of both contrasting well with the green of the grass and the foliage of Sycamore, Lime, and Chestnut trees above. Some years since the bulbs were planted, three in a patch about 3 yards apart, and they have increased till now they form good sized clumps which flower annually. The advantage of growing these two sorts is that they are late flowering, and thus prolong the display after the bulk of the family are past. The point is not to cut the grass until the foliage of the Narcissi has died down, thus allowing the bulbs to mature naturally, and ensuring a full crop of flowers annually.—E. M.

— LIFE HISTORY OF FUNGI.—The usual Friday afternoon lecture at the gardens of the Royal Botanic Society was delivered by Mr. Henry Power, F.R.C.S., upon the "Life History of the Lower Fungi." It dealt in a popular manner with the various microscopic vegetable organisations known as moulds and mildews, whose spores or seeds floating in countless millions in the air or resting upon the soil are ever on the look out and attack and destroy animal and vegetable substance by resolving them into their inorganic constituents, sometimes benefiting mankind, but more often disappointing him by eating up the fruits of his labour, producing, as they do, all those diseases which devastate our crops, as the Potato disease, Hop blight, Vine disease, rust in Wheat, and many others against which science as yet has found no remedy. A second lecture, dealing with the higher fungi, will be given this week. They are free to all visitors to the gardens.

— PARIS GREEN.—Messrs. Blundell & Spence, the well-known manufacturing chemists, write:—"Under your head of Roses in the *Journal of Horticulture* for May 19th, we notice that Mr. J. Hiam of Astwood Bank, Redditch, gives his experience of Paris green as a powerful and effective insecticide for Rose maggots. He also gives instructions for using the same, pointing out the necessity of keeping the Paris green in perfect suspension whilst spraying. As he says he would be pleased to hear of the results from others, we should like to point out that there is a great advantage in using pure Paris green that has been finely levigated in water. This is in a much finer state of sub-division than any Paris green sold in powder, and it very easily keeps in suspension. It is, therefore, much safer to use, and it is also more effective. Excellent results have lately been obtained in exterminating red spider on Gooseberry bushes; indeed, it is not only effective against all leaf-eating insects, but, as an experiment will show, is equally effective against green fly."

— LILACS.—These I never saw flowering more freely than this year. It is the exception rather than the rule to find any other variety but the common kinds—*vulgaris* and *v. alba*—in gardens. What, I would ask, forms a handsomer bush than the Persian Lilac? and what is more showy when covered with its semi-weeping masses of flower of a bluish-purple hue? Charles X. is much to be preferred to the common variety. The tree is a more vigorous grower, erect in habit, and the flower trusses are borne in greater profusion. The colour is a deep purple lilac. This variety is decidedly the best of all. There are many new sorts now in commerce which give considerable diversity to any shrubbery—for instance, the double-flowered kinds *Mathieu de Dombasle*, reddish mauve, and with very long trusses; and *Michael Buchner*, pale lilac, margined with rose; not to mention new single kinds, such as *Alba grandiflora*, and *Dr. Lindley*, reddish lilac. As a rule the Lilac bushes are allowed to grow far too thick; fewer better ripened branches would give much more satisfaction. The weakly growths should be cut out, to give more air and light to those remaining. Varieties that are budded or grafted on seedling stocks should have all sucker-like growths removed which rob the plant of its strength. We see a thicket of shoots springing up from the base, which are quite useless. When the common varieties which have been grown from suckers have become weakened by age and want of some stimulant in the shape of manure, only giving a few flowers poor in quality, cut off the branches to the

ground line, and only allow two or three of the strongest shoots to grow; a strong vigorous bush would then be secured, and in two or three years it would give infinitely better results than the decrepit old bush.—E. M.

— STRAWBERRY VICOMTESSE HERICART DE THURY.—Much has been written about the merits of various Strawberries of late for forcing, and amongst them the Vicomtesse has been mentioned. It has long been a favourite of mine, not only for pot culture, but for outdoor growth also. In this respect no sort that we grow succeeds better. It never fails to give good returns, and cannot be beaten in point of flavour by any of those which are looked upon as early sorts. As an early outdoor crop the manner in which the foliage shelters the blooms from late frosts is a strong point in its favour. The fruit produced may not be so large as some others, but there are generally two in the place of the one large fruit of some other sort, and the fine flavour fully balances any defect in size. With the late Mr. Wildsmith, who grew early pot Strawberries as well as most people, this was an especial favourite, always presenting a rich colour, no matter at what time the fruit was ripe. Those persons who have not given this variety a trial, and who require fruit of good quality, and plenty of it, would do well to try it.—E. M.

— KELWAY'S MEDALS FOR HERBACEOUS PLANTS.—The following medals are offered this year through the Royal Horticultural Society at their meetings:—For *Pyrethrums* (perennial) on June 7th, six single and six double varieties, three blooms of each variety (large silver). For *Herbaceous Pæonies*, June 21st, three single and nine double varieties, three blooms of each variety (large silver-gilt). For *Delphiniums*, June 21st, twelve varieties, one spike of each variety (large silver). For *Gaillardias* (perennial), July 12th, six varieties, five blooms of each variety (large silver). *Kelway Gladiolus Medal* September 6th, twelve spikes in twelve varieties. The flowers must have been grown by the exhibitor (amateur), must consist solely of British-raised varieties, which must be procurable in commerce, as far as possible correctly named, with the name of the raiser of each variety also attached. Schedules of the R.H.S. and all particulars may be obtained from the Secretary, 117, Victoria Street, London, S.W., or particulars from Messrs. Kelway & Son, Langport. There is no entrance fee.

— COUNTY COUNCILS AND COTTAGE GARDENING.—During the delivery of lectures on horticulture, given under the auspices of several County Councils during the past winter, it was frequently urged that very much good might be done in furtherance of the instruction in gardening to the working class, not only if cottage garden societies, exhibitions, allotments, &c., were established in every village where practicable, but also that competent persons should be occasionally employed to visit these villages or garden areas, note the respective merits and demerits of the gardens and allotments, as also of their products represented at the exhibitions, and take full advantage of the opportunity thus offered to give good advice and counsel to the assembled workers and competitors. The suggestions have been adopted by the Beddington and Bishop's Waltham Societies, Mr. G. W. Cummins being Honorary Secretary of the former, and Mr. E. Molyneux of the latter. The Bishop's Waltham Show will be held on the 27th of July, and Mr. Alex. Dean, one of the Judges, has been engaged by the Hampshire County Council to lecture on the occasion. Mr. Dean and Mr. Luckhurst will also deliver addresses at the Beddington and Carshalton Conference on behalf of the Surrey County Council on Bank Holiday, August 1st, as will the Judges of the gardens, allotments, and exhibited produce, Messrs. G. Gordon and J. Wright. Both gatherings are expected to be of a representative character, and will doubtless tend to stimulate an increased number of the working classes to strive for greater excellence in domestic gardening. What may be termed continuation school gardens are being established by the Surrey County Council, and a series of plots of about a rod each are now being worked at Banstead by youths varying from thirteen to eighteen years of age who have ceased school attendance. They proceed under the immediate guidance of local gardeners and the general superintendence of Mr. J. Wright. There is a great demand for these plots, on which the occupants will be taught how to use the implements with which they are supplied, and to cultivate in a proper manner serviceable crops, also a few flowers by those who wish to grow them. Where it is convenient to do so a large standard plot will be added to the series in which the routine of fruit culture can be demonstrated. Prizes will be given for the best managed plots. This is a distinct step in advance, inaugurated by Mr. H. Macan, M.A., the practical and energetic organising Secretary of the Surrey County Council.

— DEATH OF MR. EDMUND COLE.—The death of Mr. Cole took place at Althorp Park, Northampton, on May 9th, at the age of fifty-two, from chronic Bright's disease. This well-known gardener entered the service of F. W. Dolman, Esq., Alverstoke, Gosport, and proved himself a most successful grower and exhibitor of plants, fruits, and vegetables in the neighbourhood of Gosport, Portsmouth, and Fareham, his most successful exhibits being his well-known stove plants. He was also very successful with Grapes, and was the first to exhibit pot Vines at the Southsea Exhibition, his black and white Grapes in pots on arches being the principal feature of the Show. In January, 1878, he entered the service of Earl Spencer, K.G., at Althorp Park. In 1882 he introduced the now famous Potato Cole's Favourite, raised at Althorp, it having taken the prize of 10 guineas at the Northampton Seedling Potato Exhibition for the best three qualities—viz., heaviest cropper, best table, and best disease-resisting Potato then on trial, and was awarded a certificate of merit from the Royal Horticultural Society. In 1887 he introduced the Althorp Marrow, a splendid white wrinkled Pea, sent out by Messrs. T. Perkins of Northampton. He was also a very successful exhibitor at the Northampton Horticultural Society's Shows, his Grapes there being seldom beaten. In August, 1891, he won the silver medal for a collection of fruit at the Northampton Society's Show. He was an active and useful member of that Society, and one of the first to form the rules on a sound basis. Mr. Cole had gained a wide circle of friends in the gardening world, and he was much valued and respected by his employer and those under him. He has been a member of the Gardeners' Royal Benevolent Institution fourteen years, and also of the Gardeners' Orphan Fund since it started. He leaves a widow and six children to mourn his loss.

— "S. A." sends us the following cutting from a daily paper:—"TOMATO DISEASE IN THE CANARY ISLANDS.—A correspondent, writing from Teneriffe, states that with the practical disappearance of the cochineal industry, killed as it was by the discovery of aniline dyes from coal tar, the commercial prosperity of the Canary Islands received a blow from which for many long years it never recovered. The adaptability of the soil and climate to the growing of Tomatoes, many hundreds of tons of which leave the islands every season, must have compensated largely for the loss occasioned by the failure of the cochineal trade. For a considerable time past, however, rumours have been rife concerning a disease which has attacked the plant, rendering its produce in many instances quite unfit for exportation. Every endeavour has been made to localise the mischief, but without success, and it is reported that crops in all parts of the Canary Islands are seriously affected, and that growers view the prospect of the approaching season with considerable apprehension."

— WEST END WINDOW-BOXES.—Now that the ladders of the painters are beginning to vanish one by one from the walls of Belgravia, says an evening contemporary, flower-boxes reappear. For some weeks the porticos in front of the house where Lady Warrender resides have been fragrant with Mignonette. Mignonette and crimson Stocks adorn the lower sills of Lady Beauchamp's mansion. Marguerites are, as usual, favourites; sometimes they are to be seen alone, as in front of Lady Shaftesbury's windows; oftener they are to be found in combination with other plants. There is a fine display of them in Sir John Lubbock's windows, where they wave gaily above rows of drooping Cytisus and hanging grass. Lady Cotterell mingles yellow Cytisus with red "Geraniums." Some of the finest boxes are to be seen in the front of the Earl of Sefton's, where Pelargoniums, Fuchsias, Nasturtiums, and Marguerites vie with the liveries of the flunkeys in magnificence. Cytisus and Mignonette form another favourite combination. A pretty effect is produced in Cheyne Walk by rows of yellow Tulips, only a few of which are placed on each sill, so that the irregular outline of each flower stands out in striking contrast with the gloom of the interior when the windows are opened.

— BALSAMS.—It is more interesting than pleasing to learn how Balsams seem to have gone out of fashion either as pot or bedding plants. Probably the introduction of Begonias with some other rich-flowered and easily grown pot plants has much to do with this disappearance of the once highly favoured Balsam; and something may be due perhaps to that love for change and variation in flowers inherent in us all, and yet we ever found a well grown and flowered Balsam of a fine double strain to be a beautiful object and presenting a very pleasing variety to ordinary pot plants. Then it is very much in favour of Balsams that we can have fifty or double that number of good

strong plants in 6 or 7-inch pots raised from seed in but two or three months and blooming finely for at least six weeks without any winter trouble, simply by sowing seeds in April and growing the seedling plants along in simple fashion and in a comparatively cool temperature. When sturdy, robust, and with branches thinned out, what charming plants Balsams make when the stems are covered with huge double flowers. What variety there is to be found in them also. Seedsmen will give us still from twelve to twenty diverse colours or markings in the flowers—selfs, striped, and spotted—all exceedingly beautiful. Out in the open ground Balsams have suffered most in the past from improper culture. They have been too highly fed, and as a consequence have made luxuriant growth and leafage, which have served to hide the flowers rather than expose them fully. It is better to dibble seedling plants after they have become strong direct from the seed bed into the open ground than to first pot them, then turn them out with balls of soil attached, as the result is undue growth rather than flowers.

— BULB CULTURE AT HOME.—The severe injuries done to the Hyacinths in the bulb fields of Holland, as portrayed by Mr. A. H. Pearson, shows that here at home we, at least, are better placed, so far as weather is concerned, than are the Hollanders; for I do not know of any instance where home-grown Hyacinths have so suffered. It is thus seen that weather at home presents no obstacle to successful bulb culture. On the other hand, we can show some cases—that of Mr. Walker of Ham, for instance—where bulbs can be grown in England as well as, if not better than, in Holland; and if Narcissi can be produced in such fine form, why not Hyacinths, Tulips, &c.? That we have plenty of soils as good as the Dutch there can be no doubt. The chief requirements seem to be effective irrigation and abundance of manure. These are elements not at all difficult to furnish, especially as now we pour sewage into the sea enough to irrigate hundreds of thousands of acres of bulb land effectually. Then our land at home, even of the best, does not seem to be nearly so high rented as it is in Holland; and if labour be more costly, as Mr. Pearson shows, at least we have the evidence of Mr. A. J. Balfour, M.P., as well as of many authorities, that eight hours' English labour is worth ten hours' labour on the Continent; and therefore, labour at home, if better paid, is, after all, cheaper than is that of the drudger of Holland. We in England pride ourselves on a detestation of sweating labour. If, as Mr. Pearson says, the miserable labourers of the Dutch bulb fields have to work fifteen hours per day for 2s. 6d., then every honourable upright man who purchases Dutch bulbs is aiding a system of labour sweating which is little less than infamous. I say we can, if we will, grow as good bulbs as the Dutch sweaters can at home, and as profitably, with fairly paid labour.—A. D.

— EARLY TOMATOES, LATE CHRYSANTHEMUMS, AND APPLES.—For the last ten days we have been cutting some very nice Tomatoes from a couple of old plants of last year. They are more than a year old, so to speak, as these last year's plants were from cuttings put in in the autumn of 1890. The plants were just alive this spring, and as they were at the end of the early vinery the plants seemed to soon spring into life all over as the temperature of the house increased. Seeing this I thought I would let them have another chance. Flowers soon showed on the numerous laterals, the points of the shoots were stopped at each truss, and the result is that I counted between fifty and sixty fruits in various stages recently, and I send you a couple of fruits with this. In a case like this it seems a decided advantage to keep an old plant to be of good service for early fruiting, as I think they are quite a fortnight earlier, and a fortnight in earliness is an item of importance in a private garden. I also send you herewith two flowers of Mrs. Alpheus Hardy Chrysanthemum. A bunch of these flowers in May may be considered quite a novelty. Instead of throwing away the old plant, which did not flower in winter, it was kept, and, taking its luck in the greenhouse during the winter, at the end of the shoots in spring I noticed that flower buds were formed. I do not think it an advantage to have Chrysanthemums so much out of season as this, still the occurrence may be worth noticing. I also put in the box a sample Apple of Alfriston (?), which is a very good keeper. Last August I was very nearly able to exhibit a plate of this sort at our local show for a plate of Apples grown in 1890. I could find four fruits, but five were wanted, so I had to gather a dish fresh from the trees.—ROBT. MACKELLAR, *Cheadle*. [The Tomatoes were very good; the Apple, which is correctly named, was a fine specimen of a useful variety.]



CATTLEYA SCHRÖDERÆ LEYSWOODIENSIS.

THE beautiful and fragrant *Cattleya Schröderæ* has gained a firm position in the estimation of Orchid growers. The flower is built on bold, yet graceful lines, is distinctly coloured, and agreeably perfumed. There is little cause for surprise that varieties should crop up one by one, and so long as the best characteristics of the type are retained variations will be welcomed. On May 17th the Orchid Committee of the Royal Horticultural Society gave

A FINE CATTLEYA MOSSLE.

THIS superb *Cattleya* still maintains its position in collections, notwithstanding the many valuable introductions of recent years. When seen in a good state of cultivation it is a grand Orchid, and it is evident that some time must elapse before it will take a second place. There is a plant under my charge at the present time at Mrs. Haslam's, Ravenswood, Bolton, carrying the enormous number of thirty-nine flowering spikes, and over eighty fully expanded flowers. On an average the individual blooms attain a measurement of 7 inches from tip to tip of the petals. I may say that this plant has been under my charge for sixteen years, and I have watched its development with a great amount of interest.

—JAMES HICKS.

BROUGHTONIA LILACINA.

THIS plant is a native of St. Domingo, and was formerly called *Læloopsis domingensis*. The pseudo-bulbs are slightly compressed



FIG. 69.—CATTLEYA SCHRÖDERÆ LEYSWOODIENSIS.

an award of merit to a variety exhibited by Mr. Bristow, and emanating from the garden of his employer, J. W. Temple, Esq., Leyswood, Groombridge. It was first shown under the name of *Cattleya Schröderæ Leyswoodi*, but the obvious inaccuracy of this was pointed out in the Journal, and the name *C. S. Leyswoodiensis* was substituted for it. It was greatly admired when exhibited at the Drill Hall on the 17th inst., and is represented by fig. 69. The flower is of considerable size, the petals and lip being particularly broad and well developed. The former are nearly white, but with a very faint rose shading, and the sepals pure white. The lip is beautifully frilled, as the engraving shows. The apical area is white, the throat deep orange, edged with a band of mauve, which extends to the exterior of the tube. It would not be easy to imagine a more beautifully marked flower than this, and it should take a high place as a varietal form.

and the leaves are oblong, dark green, and leathery. The peduncle rises from the apex of the bulb and bears several flowers of a pretty lilac colour; the lip is two-lobed, and has a wavy margin, the centre veined with yellow. Fig. 70 (see page 401) represents three flowers turned over from opposite sides of the stem so as to bring the lip into position. The plants flower during February and March, and may be grown in the *Cattleya* house in baskets with peat and sphagnum. Although the flowers are pretty and interesting *Broughtonia lilacina* is a plant which does not seem to take kindly to cultivation.—C. K.

NOTES AND COMMENTS.

ODONTOGLOSSUM NÖTZLIANUM, or more correctly, perhaps, *Cochlioda Nötzliana*, forms the subject of a coloured plate in the last issue of "Le Moniteur d'Horticulture." It will be remem-

bered that a small consignment of it was sold at the auction rooms recently, and the one plant in bloom showed it to be attractive and pleasing in the colour of the flowers. Mons. Otto Billif thinks that it ought to be classed amongst the best introductions of the year, and states that it does best in a mixture of Polypodium fibres and living sphagnum, in well drained pans or baskets suspended near the glass of a cool house. It does well when associated with *Odontoglossum crispum*, contrasting admirably with these jewels of the Orchid family by its bright vermilion flowers, which can only be compared with certain varieties of *Sophranitis grandiflora*.

The employment of Orchids as cut flowers is ever increasing, and when their exquisite delicacy of tone is considered there is little cause for surprise that the demand should grow with such rapidity as is now the case. Wherever floral decorations are carried out, unless on a limited or very economical scale, Orchids are pretty sure to be found playing an important part. As it is on this, so it is on the other side of the Atlantic, and it is stated that the demand for *Odontoglossum crispum* is so great in the United States that a Belgian firm are now studying means of placing cut flowers on the New York markets. America is flooding Europe with fruit, and now Europe proposes to retaliate with Orchids.

Should Orchids be cut? Undoubtedly they should, and as a number are in beauty at the present time it may be advisable to repeat the warning that has been previously given against allowing the plants to have matters all their own way in respect to flowering. Many persons who have not long experience to guide them rejoice to see the plants smothering themselves in bloom, and no doubt plume themselves on the cultural skill they have displayed; but when the plants are seen to get weaker and weaker it is necessary to look about for a reason. The true one is often passed over, and something else, such as the fog, fixed upon. There was a time when east winds were the cause of every ill that gardeners had to struggle against, from corns to caterpillars, and all that the east wind was guilty of in those days the fog is blamed for amongst Orchids. It is the universal pill that kills instead of cures.

It is an interesting point whether very profuse flowering is weakening, independently of seed production. A correspondent says: "With all due respect to those who hold an affirmative opinion I think a negative reply ought to be given if the question were put. Take any ordinary free-flowering greenhouse plant, such as a Zonal Pelargonium or a Fuchsia, and it will be found that there is no weakness observable, however abundant the bloom, so long as seeding is prevented. And it is the same with still commoner flowers, such as garden annuals. If the flowers are picked while young the plants remain vigorous and floriferous. I fail to see why what holds good with these should not apply equally to Orchids. A common law rules them all." The point to observe is to cut away the flowers immediately there is the least sign of fading. Nearly everybody waits too long before removing them.

Pleurothallus punctulata, recently flowering in Mr. R. J. Measures' collection, is one of the curiosities of the Orchid family, and one of those flowers which compel attention by their quaint and extraordinary appearance. There are two sepals, the lower double the size of the upper one, yellow, dotted with reddish brown. The petals are small and are deeply blotched with purplish carmine; the hanging lip is dull purple and the column lemon. The under side of the leaves is mealy. A description of the colouring gives no idea whatever of the remarkable appearance of the flower.

Under whatever name it may be known, *Odontoglossum vexillarium* or *Miltonia vexillaria*, this Orchid is one of the most beautiful and valuable at the present period of the year. A splendid collection is grown at Cambridge Lodge, comprising about 320 plants in many choice varieties. They are now in great beauty. The richer coloured forms are wonderfully effective in a mixed collection, but some of the softer shades are very pleasing.

The struggle for supremacy that has been waged for some time between an English and a continental Orchid firm has developed into a battle-royal as respects names. A produces a species from somewhere or other, and gives it the name of a popular princess; B caps this by another species that merits nothing less than association by nomenclature with the popular princess's mamma-in-law. If this sort of thing goes on all the crowned heads of Europe will find themselves cast in floral prototypes. We shall

have a *Cattleya Crown Prince* and then a *Cattleya Emperor*, a *Cypripedium Cesarevitch* and afterwards a *Cypripedium The Czar*. When this source is exhausted others will have to be brought into requisition.

That some Orchids will do well under cooler conditions than those usually accorded to them is proved by a fine plant of *Dendrobium Pierardi* now flowering in a mixed structure at Tunstall House, near Sittingbourne. The temperature falls to 45°, and sometimes as low as 40°, in winter, to the serious detriment of *Eucharises*, but the *Dendrobe* is in robust health, and is now carrying eleven good spikes. It was transferred from a 4½-inch to a 12-inch basket a year ago, and has progressed most satisfactorily. When under such condition as there shown by Mr. Aitken this *Denbrobe* is undeniably beautiful.

Exhibitors will have to be careful how they mix up Orchids and other plants at the shows, for the public make straight for them and class all alike as Orchids. Some of the knowledge that these enthusiasts acquire is curious in the extreme, and when they draw upon the store subsequently the effects must be decidedly funny at times. For instance, one person was heard to adjure another to "put down the name of that beautiful Orchid," with a profound emphasis on the adjective, when the plant indicated was an *Anthurium*. Those who are familiar with plants smile at the ignorance of the general public, but after all, there is nothing to be wondered at in it.—NOVA.

IN MEMORIAM—HENRY WILSON OF HALIFAX.

I DEEPLY regret the occasion to write a brief memorial of a true old florist, and a sincere old friend of mine and many more, Henry Wilson of Halifax, who passed away on May the 6th, aged seventy years. He was on the point of starting with his *Auriculas* for the Northern Show on the morning of April 26th, when he was seized with the illness that ended with his life ten days afterwards. He was one of those old growers whom the National Auricula Society brought together twenty years ago, and ever since that time he had been a peaceful, helpful, steadfast, and successful member. At any competition wherein his plants could appear at their best he was always a power to be reckoned with, and they have occupied the highest places. He was happy in success and cheerful under defeat—a good winner and a good loser. It is given to not many to be so equable as was dear Henry Wilson.

His love for his favourite flower was most single and intense. He had an eye for all that is beautiful in flowers, but a heart for only one—the *Auricula*. He was a keen and accurate judge, but in his gentle and retiring way would never occupy the office of one if it were possible for him to avoid it. His love for the *Auricula* had some most expressive and characteristic features. His regard for the plant was so tender, and his delight so great in its health and unburdened growth, that he habitually denied himself the pleasure of seeing the full duration of its bloom. When the shows were over, or a flower had reached maturity, he would remove the flower stem for the plant's sake. Some of us who grow Orchids might learn a lesson here.

He would never raise a seedling because of the cost to the plant, and though he would gladly grow a plant of a good new seedling it took him some time to be reconciled to an unfamiliar type of foliage. He would often say to me in his visits to see the *Auriculas*, "I am not at home among these. I recognise so few among your plants." There were some *Auriculas* he would grow for their very name's sake, for the sweetness or the power of it, though fully aware of their weak points as florist flowers. Among such were *Bonny Lass*, *Smiling Beauty*, *Regular*, *Highland Laddie*, *Taylor's Glory*, *Champion*, *Freedom*, while to me his merry laugh seems to echo yet in the name of the very last plant there is of Clough's *Jingling Johnny*, raised by a very strong-minded old dame of that name, of whose character he would give us most amusing reminiscences. This last of *Jingling Johnny* once came to me for a year's change. It was little more than a huge-flowered, pure green self, whose leathery flowers lasted as long as any Orchid I know.

As a cultivator of the *Auricula* Henry Wilson took infinite pains. He never would use glazed pots or the familiar 4-inch pot of most growers. Each plant was set in the middle of a heavy, large, hard-burnt vessel with substantial rim, not deep for its width, which might be some 7 inches inside. Of soil, however, it would contain little more than would fill a 4 or 5-inch pot, the rest being thorough and powerful drainage. He was a master hand, and thoroughly understood the plants. He grew them very healthily and very hardily, never under more protection than that of strong wooden frames. Often during summer I have seen his plants in the open air set in single row on the cool side of garden walks in the grounds of our mutual friend, J. Whiteley Ward, Esq., of South Royd, Halifax, who of late years gave a warm welcome and a kind home to my old friend's *Auriculas*, there being no suitable garden attached to Mr. Wilson's residence at Upper Lodge, Manor Heath.

With Henry Wilson's death dies out the culture of the *Auricula* in Halifax. In his time he had seen many thriving collections there; and in a simpler and less smoky age, that neighbourhood must have been a perfect home for such a plant as this. To this day it is not the place itself that would know the *Auricula* no more, it is that they who loved

it are no more, and as yet none take their places. Henry Wilson's plants will therefore be dispersed, and the breaking up of the collection is the end of one that was continued through half a century. To the head gardener at South Royd, Mr. T. Naylor, it must only be one mark more of his loss of a dear friend and companion to see these plants pass away, of which he was the trusted guardian in their late owner's necessary absences.

Henry Wilson was not only of one taste or gift. He loved country walks better than town streets, and knew much of birds, and flowers, and trees; yet he was faithfully devoted to all business duties, and in a touching notice by an old colleague on the staff of the *Halifax Courier*, with which he was connected many years, after which he was then registrar of births and deaths for many years more, we have the fair record of Henry Wilson's business life: "In discharge of official duties, as indeed in all that he had to do, he was scrupulously punctual and exact, efficient and faithful." Just as he was with his flowers so he was with his work. He had marvellous powers of memory, "a singular and striking habit of quoting from Shakespeare in ordinary conversation in an apt and telling manner to fit the subject of the moment." It was no tedious habit of quotation, it was perfectly natural to him. He loved pure nervous English, and expressed himself, apparently unconsciously, in, if I may so say, its florist flower language. This, and a quaint natural humour, were great charms in his companionship. "He used to speak of the biographies of Halifax worthies in the local press as 'putting by good people in *Courier* Lavender,' and wondered if a friend would find a few sprigs of Lavender for him when he had passed over the border." As one to whom he had expressed that thought I hope I may ask, on behalf of the many florist friends who loved him, to lay in the fitting pages of the *Journal* this spray of Lavender in memory of Henry Wilson.—F. D. HORNER, *Burton-in-Lonsdale*.



THE NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual report on, and financial statement of, the affairs of the National Society, will be read with interest by all Chrysanthemum growers, and as a schedule of prizes for 1892 is allied with it exhibitors will not find themselves out in the cold. The number of members is now 656, and of affiliated societies eighty-seven. It is claimed in the report, and with justice, that the exhibitions held at the Aquarium in 1891 were quite worthy of a Society calling itself national. Complaints are common enough with respect to the unsuitability of the building, but few have been found to deny the excellent character of the displays that have been gathered together in it. Last year's November Exhibition was one of the best ever held by the Society, and there are not as yet any signs of a probable decadence. As regards the Aquarium, its disadvantages for a popular show of flowers in murky autumn weather are palpable to any visitor; nevertheless, there are many things in its favour, and the Society would probably be making a serious mistake if the quarters were shifted. The experiment of a December instead of a January exhibition has not proved to be a success, and the Committee have substituted an October Exhibition for it this year. This will take place five weeks after the early show and about a month before the November Exhibition. It may perhaps be found advisable to drop this third show eventually, but time will settle the point, and the experiment cannot do much harm.

The report comments on the work of the Floral Committee, and it will be generally conceded that this body has done its work conscientiously and well. Great care will continue to be exercised, it is said, in the granting of certificates, and the assurance will be welcomed by the public, if not by raisers of novelties. One can understand a feeling of uneasiness on the part of the latter, but they will not be the losers ultimately by a wholesome strictness in the award of certificates, for a loose system would result in a number of worthless "novelties" being sprung upon the public, as well as some good varieties, and the popularity of the flower would inevitably suffer through the disappointments ensuing. If the Committee err at all in this matter it is to be hoped, in the best interests of the Chrysanthemum and of all who grow it, that it will be on the side of severity. The publication of the papers on sports, that were read by the Rev. G. Henslow and Mr. N. Davis at the Conference held in connection with the last November Show, is a step that will be approved by country members who were not in town on the occasion referred to. Both are of much interest. A conference on the subject of increasing the size of boards for Japanese is to be held in connection with the October Show this year, the Society considering the matter too important to be settled off-hand. There is stated to be considerable difference of opinion on the subject, and this being the case it is wise to afford an opportunity for thrashing the matter out thoroughly, although general comment would lead to the impression that a change is almost universally demanded.

At this early date only brief reference need be made to the Exhibitions. The first is fixed for September 7th and 8th, the second for October 12th, 13th, and 14th, and the principal one for November 8th,

9th, and 10th. The schedule of the latter is of the usual comprehensive character. The Societies' competition has been criticised in the past; but it is an undoubted success, and is continued. A special feature is provided in the offer of two challenge cups to commemorate the late Mr. William Holmes. These have been procured through private subscription. The first, with a sum of £10, is offered for thirty-six incurved, and the second, with a similar amount, for forty-eight Japanese, while the minor prizes are also worth winning. The object is a worthy one, and it is carried out in a liberal manner. Although the lamented death of Mr. Holmes caused his work in connection with the Society to be transferred to new hands, the old spirit and energy exist, and will carry it and its work steadily on.

THE TEMPLE SHOW.

THE great early summer Show of the Royal Horticultural Society, held, by permission of the Benchers, in the gardens of the Inner Temple, has become one of the great gatherings of the floral world. It was taken up at its inception with a vigour and spirit which augured brightly of success, and has served the double purpose of providing the public with a magnificent display, and of drawing widespread attention to the Society by which it is conducted. In many respects the Exhibition is unique. Orchids are unquestionably the main attraction to the public, and of these collections are exhibited which no other occasion suffices to draw forth, while the usual contributions of better-known exhibitors are largely augmented. It is doubtful whether a richer or more varied display has ever been got together than is afforded by the combined treasures of Sir Trevor Lawrence, Bart., M.P., Baron Schröder, Messrs. F. Sander & Co., Messrs. B. S. Williams & Son, Messrs. Charlesworth, Shuttleworth & Co., and other well-known growers, and it is a matter of no surprise that the pleasure and interest derivable from it should be of an entirely exceptional character. In other departments the Show is also remarkable. The various specialities of many noted growers, amateur and professional, are exhibited in the best condition and to the greatest extent, hence all tastes are liberally catered for.

It was not expected that this year's Exhibition would mark any deterioration. The interest of the public was centred on it as actively as on any previous occasion, while the friends and supporters of the Society were not less warm than heretofore, but, on the contrary, encouraged by previous successes. Anticipations of another splendid display were, therefore, formed with reason, and it is most gratifying to record that they were abundantly fulfilled. As was the case last year, four huge marquees are filled with a magnificent assortment of plants, flowers, and fruit. In the largest of them Orchids are shown in great numbers and diversity, Sir Trevor Lawrence, Baron Schröder, F. Wigan, Esq., F. C. Jacomb, Esq., C. J. Lucas, Esq., Horsham, Messrs. Charlesworth, Shuttleworth & Co., Messrs. Sander & Co., and Messrs. B. S. Williams & Son all contributing largely and well. Perhaps there was a slight falling-off in numbers, but at a general glance it was hardly observable, and the display remained one of wonderful extent and beauty. The others were furnished with a great variety of plants, and these, together with the Orchids, are referred to in the following report, which is as complete as it could be made in the short time that elapsed between the opening of the Show and the time of going to press. It may be interesting to add that the total amount of space devoted to the Show was nearly 25,000 square feet, and this will serve to afford some idea of its magnitude.

ORCHIDS.

As on previous occasions, the broadest of the quartette of tents, a great erection 160 feet long and 60 feet wide, was set apart for Orchids, and a magnificent effect was produced by them. The central staging was 14 feet wide, and the plants were arranged in tiers or terraces, thus providing a sloping bank of flowers on each side, a line of Palms dividing the two at the top and imparting freshness. The richness and diversity of the display was remarkable, and evoked the greatest admiration. Particulars of the different groups are given in the order of their arrangement. Passing round to the right the first reached was that of F. C. Jacomb, Esq., Cheam Park, Surrey (gardener, Mr. W. May), which occupied about 15 feet run. It was mainly composed of Cattleyas, these embracing some excellent forms of *C. Mossiæ* and *C. Mendeli*. Several of the latter were particularly noteworthy. A fine variety of *C. gigas* was one of the best features of the group. *Miltonia vexillaria* (*Odontoglossum vexillarium*) in several varieties was also noticeable, as were forms of *Odontoglossum crispum*. About an equal space was covered by F. Wigan, Esq., East Sheen (gardener, Mr. W. Young), but this was more varied in character. A splendidly flowered plant of *Cypripedium barbatum* was very marked, as were two excellent specimens of *C. Lawrenceanum*; *C. Curtisi*, *C. Dayanum*, *C. ciliolare*, *C. caudatum*, and *C. Parishii* were also represented. Amongst the Cattleyas were a fine plant of *C. Mendeli*, a richly coloured form, also a pale variety, and several forms of *C. Mossiæ*. Of *Lælia purpurata* there were two good examples. *Dendrobium suavisimum* and the charming green and white *D. Dearei* were noticeable. *Lælia majalis* in two distinct forms was very beautiful. *Odontoglossum crispum* and *O. citrosum* were present in variety, *Cymbidium tigrinum*, *Sarcophilus Berkeleyi*, *Oncidium Krameri*, *Phalaenopsis speciosa*, *P. grandiflora*, *Saccolabium ampullaceum*, and *Odontoglossum cordatum* adding to the interest of the display, which was further enriched by a choice assortment of *Masdevallias*.

A magnificent collection came from Sir Trevor Lawrence, Bart.,

Burford Lodge, Dorking (grower, Mr. White). It occupied about 30 feet, and was remarkable alike for the splendid specimens and the exceptionally interesting character of the exhibits. Cattleyas were richly represented. There were many fine plants of *C. Mossiæ*, and a beautiful form of *C. Mendeli* with a very broad frilled lip, richly coloured, and lemon throat, also *C. intermedia*. *Miltonia vexillaria* was well represented, also *Odontoglossum citrosimum*, of which there were many fine plants and several exceptionally beautiful varieties, too numerous for detailed description. *Dendrobium Guibertianum*, in the way of *D. thyrsiflorum*, but with looser racemes and more pendulous pedicels; *D. transparens*, a free-flowering form with delicate lilac flowers; *D. Brymerianum*, *D. Jamesianum*, *D. aduncum*, with small reddish mauve flowers and a sharply pointed lip; a fine plant of *D. Dearei*; *D. Bensoniæ*; *D. Parishii polyphlebium*, a delightful little form, with soft rosy flowers, lip creamy yellow and lightly fringed; *D. Lowi*, a most distinct species, with beautiful clear yellow flowers, the curved lip furnished with orange hairs, orange lines extending into the throat; and *D. lamellatum*, a minute and very rare species, looking in the bud like a cluster of Lilies of the Valley, the expanded flowers about half an inch across, white with greenish yellow lip, were some of the most noteworthy *Dendrobiums*. Of *Cypripediums* there were *C. Hookeriæ*, *Volonteanum*, *C. barbatum*, *C. Curtisi*, *C. Stonei*, *C. philippinense*, *C. Schröderæ*, *C. selligerum majus*, and several others. A beautiful white form of *Miltonia vexillaria*, named Fairy Queen, was shown with others; also *M. Roezli alba*. *Lycaste leucantha*, a dwarf species, with rose tinted petals and greenish sepals; *Bulbophyllum Sillemianum*, a yellow species recently exhibited at the Drill Hall; *Epidendrum Mooreanum*, with a long raceme of small greenish flowers having a purplish red lip; *Odontoglossum excellens*, *Masdevallia cordata* Shuttleworthi, *M. hieroglyphica*, *Sarcochilus Fitzgeraldi*, *Aerides falcatum* Houlettianum, *Masdevallia irrorata* Sanderiana, *Saccolabium ampullaceum*, *Cattleya Mossiæ Wagneri*, a beautiful white form with pale yellow throat; *Aerides falcatum* Leonis, *Trichopilia marginata*, *Masdevallia Mundyana*, *Polystachya bracteosa*, and *Masdevallia Geleniana* were among the special features of this grand display, which merited further notice than can now be given to it.

About 15 feet of tabling was occupied by the collection from C. J. Lucas, Esq., Warnham Court, Horsham (gardener, Mr. Duncan); but if not large it was a brilliant display of bloom. Of more familiar plants may be mentioned *Cattleya Mossiæ* in variety, *C. Mendeli*, *C. gigas* Sanderiana, *C. Skinneri*, *Lælia purpurata*, *Cypripedium Lawrenceanum*, *Odontoglossum crispum*, *O. Pescatorei*, *Miltonia vexillaria*, and many others. Of more special interest may be noted *Oncidium papilio major*, *Cattleya Forbesi* (a curiously marked flower, sepals and petals dull green, lip yellow lined with orange red), *C. Schilleriana*, *C. Leopoldi*, *Zygopetalum graminifolium*, *Lycaste aromatica*, *Odontoglossum Kamwinski*, and *Scuticaria Hadweni*.

A beautiful group was sent by Baron Schröder, The Dell, Egham (gardener, Mr. Ballantine). It was a mass of bloom, somewhat closely packed, perhaps, but strikingly effective. A magnificent plant of *Cymbidium Lowianum* formed a noble centrepiece. There were several superb plants of *Lælia purpurata*, also of *Cattleyas Mendeli*, *Mossiæ*, and *Skinneri*, *Dendrobiums Jamesianum* and *nobile nobiliss*. The most noteworthy of the many beautiful varieties of *Miltonia vexillaria* was *Cobbiana*. *Masdevallia ignea*, *Dendrobium MacCarthiæ*, *Hexisia bidentata*, *Masdevallia Harryana armenaica*, *Epidendrum prismatocarpum*, *Aerides Savageanum*, *Cattleya intricata maculata*, *Masdevallia Schlimi*, *M. Houtteana*, *Epidendrum delliense*, and a remarkable example of *Cœlogyne Dayana*, with eleven racemes, two nearly 40 inches long, were noticeable in this beautiful display.

A splendid group, covering 50 feet run of tabling, came from Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford. So large a display would need a page of description to treat it adequately. It was one of extraordinary richness and diversity. The majority of the most popular Orchids now in bloom were represented, and many others less frequently before the public, such as *Phalæopsis grandiflora*, *Oncidium cucullatum*, *Cattleya intermedia alba*, *Odontoglossum polyanthum*, and *Lælia grandis tenebrosa*. Of better known kinds may be noted rich displays of *Lælia purpurata*, *Odontoglossum crispum*, *Cattleya Mossiæ*, *C. Mendeli*, *Oncidium macranthum*, *O. crispum grandiflorum* (a splendid plant), *Cymbidium Lowianum*, and *Odontoglossum Pescatorei*.

Messrs. Sander & Co.'s large group was noteworthy from the number of beautiful novelties it contained. It sparkled, so to say, with new gems, and was examined with the greatest interest. A full description of them cannot be given now, but attention is drawn to some of the most remarkable. *Cattleya Mendeli*, Cookson's variety, is a superb form with a lip of great size and richly coloured. It is undoubtedly one of the finest forms yet seen. *Odontoglossum Louryanum* has light brown sepals and petals, the apical area of the lip of the same colour, but the basal portion pure white. *Odontoglossum Bleui splendidissimum* is a large and beautiful variety, pure white, the petals blotched with rose at the base. *Odontoglossum crispum Sanderæ* is a remarkable form, deeply blotched with deep brownish red on a flesh coloured ground. A variety of *Cypripedium Chamberlainianum* appeared in excellens, the chief distinction being in the dorsal sepal, which is greenish white, but furnished with the lines of dots as in the species. *C. hybridum Vipani* (from Capt. Vipan) is a cross between *C. lævigatum* and *C. niveum*, showing evidence of the latter parentage. It and those in Mr. Sander's collection to which honours were awarded by the Committee will be described more fully another week. Besides these, *Oncidium Gravesianum*, *Cypripedium Wallisi*, *Odontoglossum excellens*,

O. Amesiae, *Epidendrum Randi*, and a pure white variety of *O. Pescatorei* named *Schröderæ*, in the St. Albans group, were well worthy of note.

Messrs. B. S. Williams & Son had a large and rich display, fully maintaining their reputation. Several of their magnificent Vandas, with a splendid plant of *Cymbidium Lowianum*, graced the back; while *Lælia purpurata*, *Odontoglossum luteo-purpureum*, *O. hastilabium*, *O. citrosimum* in variety, *O. Halli xanthoglossum*, *O. polyanthum*, *Miltonia vexillaria*, *Cypripedium selligerum majus*, *C. caudatum roseum*, *Oncidium concolor*, *Calanthe Masuca*, *C. veratrifolia*, and many *Masdevallias* and other plants furnished the front. In another tent Messrs. Hugh Low & Co. had arranged a magnificent collection, largely composed of *Cattleya Mossiæ* in great variety, but also comprising *Lælia purpurata*, *Dendrobium Jamesianum*, numerous *Cypripediums* and *Odontoglossums*, *Miltonia vexillaria*, *Cattleya citrina*, *Dendrobium dixanthum*, *Masdevallias*, and many others. Though not remarkable for diversity this was a rich and imposing display. Mr. Jas. Cypher also had a very extensive display in No. 2 tent. He had a grand form of *Lælia purpurata* named *Handleyana* with many other fine varieties, and a splendid plant of *Oncidium sphacelatum*, while other popular Orchids were largely and well represented. Messrs. W. L. Lewis & Co., Southgate, had a small but bright display, their most noteworthy plant being *Cypripedium Southgatense*, a richly coloured hybrid, the lip dull rose, and the sepals and dorsal sepal deeply blotched with purplish black. Messrs. Heath & Son had a superb plant of *Cypripedium Lawrenceanum* in their collection. It was a huge mass of growths in perfect health and carrying scores of flowers. They also had a magnificent specimen of *Cattleya intermedia* and a very fine *Cymbidium Lowianum*. A remarkable exhibit was that from the Right Hon. Viscountess Portman, Buxted Park (gardener, Mr. H. C. Prinsep), this consisting of three huge plants of *Dendrobium nobile*, each 4 feet in diameter, and loaded with flowering growths. They were sent to illustrate the results of the cutting-back system practised by Mr. Prinsep.

Messrs. James Veitch & Sons exhibited the new hybrid *Disa Veitchi* (*grandiflora* × *racemosa*), an evidently free-flowering form with brilliant rosy flowers. The Hon. Miss Winn (gardener, Mr. Easter) had a fine plant of *Lælia purpurata*.

PLANTS, FLOWERS, AND GROUPS.

A charming collection of Alpine plants came from Messrs. J. Backhouse & Sons, York, the plants being arranged so as to represent a miniature rockery. This contribution was much admired by visitors. The plants were in harmony as regards colour, and amongst them were some choice species. Gentians of various forms were conspicuous, as also were the beautiful *Phlox Nelsoni*, *Dianthus alpinus*, *Anemone sulphurea*, and many others. Six baskets of Alpines were shown by the Guildford Hardy Plant Nursery Co., Millmead, Guildford, which comprised some excellent plants of *Ramondia pyrenaica alba*, a light coloured form, and prettier than the type. Messrs. G. Paul & Son, The Nurseries, Cheshunt, likewise staged one of their characteristic collections of Alpines and other hardy flowers, the whole making a charming display. A group of *Lilium eximium giganteum* came from Messrs. Wallace & Co., Colchester, and a collection of new foliage plants from L'Horticulture Internationale, Brussels. The latter contribution included *Tradescantia superba*, *T. reginæ*, both apparently very strong growers; *Peperomia metallica*, a pretty plant with dark foliage, and *Caladium sagittatum*, the leaves of which were narrow, dark green edges, with a pale red and white centre. A splendid group of *Clivias* and *Azaleas* was staged by Messrs. B. S. Williams & Son, Upper Holloway, and two collections of fancy *Pelargoniums* came from Messrs. J. & J. Hayes, Lower Edmonton. Mr. M. Pritchard, Riverslea Nursery, Christchurch, Hants, made a good display with hardy plants and cut blooms, while Captain Elliott, Farnborough Park, showed plants of *Calla Elliottianum* with yellow spathes and variegated foliage. Messrs. Dobbie & Co., Rothesay, N.B., staged a very fine collection of Pansies, Violas, and Sweet Peas, the latter presenting a charming appearance. A collection of Pansies and Violas also came from Messrs. J. Cheal & Sons, Crawley; the flowers being neatly set up in sprays looked very pretty. A small box of *Lobelia* named *Barnard's Perpetual* (a purplish flower with white throat), was shown by Mr. H. Barnard, Chaseside, Southgate. Grand blooms of *Sir Reginald Welby*, *Mrs. George Devas*, and *Sir Charles Freemantle* Carnations were shown by Martin R. Smith, Esq., The Warrens, Hayes Common.

Anthuriums and *Caladiums* were well shown by Messrs. J. Peed and Son, Roupell Park Nurseries, Norwood Road, S.E.; and close by Mr. G. Phippen, Reading, staged a fine group of *Liliums*, *Spiræas*, *Palms*, *Lily of the Valley*, *Anthuriums*, and *Maidenhair Ferns* tastefully arranged. *Palms* and *Cycads* were exhibited by Messrs. E. D. Shuttleworth & Co., Peckham Rye, S.E., who also had a well-arranged group of miscellaneous plants, including *Liliums*, *Palms*, *Dracænas*, and *Crotons*. Messrs. J. Laing & Sons, Forest Hill, S.E., exhibited a beautiful group of plants arranged in a most charming manner. This contribution included Orchids, *Caladiums*, *Palms*, *Clivias*, *Crotons*, *Dracænas*, *Coleus*, *Spiræas*, and numerous other flowering and foliage plants. A collection of hardy flowering and foliage plants in pots and baskets came from Messrs. J. Veitch & Sons, and being full of flower they made a fine display. *Azaleas*, *Pæonies*, *Genistas*, *Spiræas*, *Hydrangeas*, and *Acers* were conspicuous in this group. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was represented by a fine group of Tree Pæonies, and amongst these were some grand varieties, such as *Fragrans maxima plena*, *Reine Elizabeth*, and others.

Mr. J. Jennings, gardener to Leopold de Rothschild, Esq., Ascott, Leighton, sent a collection of a yellow-flowered Tree Carnation named *Almira*, which attracted some notice. The same may be said of the large group of Azaleas, Rhododendrons, Heaths, Spiraeas, Lilioms, Hydrangeas, and other flowering plants staged by Messrs. W. Cutbush & Sons, Highgate, N. Near to the last named exhibit was a group of Clematis in pots shown by Messrs. R. Smith & Co., Worcester, which has become quite a looked-for feature in this Show. The best varieties in this exhibit were Madame Van Houtte, Countess of Lovelace, Gloire de St. Julien, Mrs. George Jackman, and Madame Lefebvre. Pelargoniums were well shown by Mr. C. Turner, The Royal Nurseries, Slough, the plants being densely flowered. Mr. H. J. Jones, Ryecroft Nursery, Lewisham, S.E., also exhibited a large group of Pelargoniums; the plants, though small, were exceptionally well flowered. Messrs. Hugh Low & Co., Clapton, also showed Pelargoniums and a group of Ericas, the plants in both cases being well flowered. Mr. Anthony Waterer, Knaphill Nursery, Woking, had double and single hardy Azaleas in pots, conspicuous amongst which was a new variety named Mrs. Anthony Waterer. This is a single form with medium sized white flowers slightly blotched with pale yellow.

Tuberous Begonias were, as is usual at this Show, exceedingly good, although the exhibitors were not numerous. Messrs. H. Cannell and Sons, Swanley, Kent, staged a large collection of double and single varieties, arranged in good order. The doubles were noticeable for their compactness, a desirable feature, and the singles for their size of bloom. Among the former a beautiful rich crimson variety named Leopold Rothschild received an award of merit, and a single salmon-pink kind, named Duchess of Westminster, was similarly honoured. Messrs. Cannell also staged blooms of a new Carnation named Mrs. H. Cannell, for which an award of merit was adjudged. This is a grand variety, with large double pink flowers, and is strongly clove-scented. Messrs. Laing & Sons, Forest Hill, likewise staged a magnificent collection of Tuberous Begonias that included some novelties of sterling merit. One double variety, named Picotee, was conspicuous in this group, and it was adjudged an award of merit. The blooms were flattish in shape, buff coloured at the base of the petals, but Picotee-edged with a charming pink shade. Baroness Burlett Coutts, a double salmon-pink, and Laing's Rival were also noticeable amongst other varieties. The last-named, a double salmon-pink, received an award of merit. A fine display of Begonias was also made by Mr. T. S. Ware, Tottenham, some grand double and single varieties being staged.

Ferns were well represented by an extensive collection which came from Mr. H. B. May, Dyson's Lane Nursery, Upper Edmonton. This included British and exotic kinds, and amongst others *Adiantum excelsum*, *Nephrolepis recurvata*, and *Pteris serrulata gracilis* were noticeable. The last named, an elegant little Fern, was deemed worthy of a first-class certificate, as also was *Selaginella elegans*, a dense dwarf growing variety. Messrs. J. Birkenhead, Sale, Manchester, also staged a large group of British and exotic Ferns, comprising many new and choice species and varieties, such as *Scolopendrium* var. *crispum fimbriatum* Cropper, *Pteris tremula* Smithiana, and others of a noticeable character.

In addition to the exhibits already mentioned, Messrs. J. Laing and Sons staged a large number of cut hardy flowers, as also did Messrs. P. Barr & Son, King Street, Covent Garden, and Messrs. W. Cutbush and Sons. Messrs. Barr's contribution also included Tulips, as well as a few hardy plants in pots. Gloxinias were shown in good form by Messrs. J. Carter & Co., High Holborn, as also were Queen's Prize Mimulus, Calceolarias, New Emperor and Double Rosette Petunias, and Cacti. Messrs. Reid & Bornemann, Sydenham, made a good display with Fancy and Zonal Pelargoniums, Ferns, and Begonias, and Messrs. J. James & Son, Farnham Royal, Slough, staged small but well-flowered Calceolarias. Messrs. J. Peed & Sons exhibited Gloxinias, as likewise did Messrs. J. Veitch & Sons. In both instances the blooms were noticeable for their brilliancy of colour. Messrs. Veitch also had a collection of their hybrid *Streptocarpus*, which have been described in previous issues. Messrs. Kelway & Sons, Langport, sent a grand collection of Tree Pæonies, Irises, Cannas, Amaryllis, and Pyrethrums, the whole making a charming display. A very dark coloured single Tree Pæony named Orme, shown by Messrs. Kelway, was adjudged an award of merit. A small collection of seedling tree Carnations was staged by Mr. Ralph Crossling, Penarth Nurseries, South Wales, the blooms being of delicate pink colour.

Florists' Tulips were represented by a stand from Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, and a collection from Dr. Hogg. The former's best flowers were Talisman, fld. byb.; Geo. Hayward, fld. biz.; Storer's No. 4, fld. biz.; and Storer's No. 19, byb. breeder, splendid base, but somewhat pointed petal. Dr. Hogg's flowers, which were in beautiful condition, comprised delightful blooms of Mabel, breeder and fld. rose; Storer's No. 2, fld. byb.; Industry, rose breeder; Sir J. Paxton, fld. and breeder biz.; Geo. Hayward, fld. biz.; Talisman, byb. breeder; Duchess of Sutherland, fld. byb.; Madame de St. Arnaud, fld. and breeder rose; and several others. They were remarkable for great substance, fine form, and clear base. An old grower of Tulips remarked if the two collections had been in competition the Doctor would have won easily.

Roses were very fine. A splendid collection of blooms of Maréchal Niel Roses, cut from one plant, was staged by H. B. Collins, Esq., Field Lane, Alvaston, Derby. The flowers were perfect in form and well coloured. Messrs. W. Paul & Son, Waltham Cross, exhibited a remarkably fine group of pot plants, conspicuous amongst which were

Madame Lacharme, Violette Bouyer, Countess of Rosebery, Mrs. G. Laing, Beauty of Waltham, Paul Neron, and Madame Anna Moreau. Cut blooms were also shown in grand form by Messrs. Paul, the flowers being fresh, perfect in shape, and very bright in colour. Messrs. G. Paul & Son, The Old Nurseries, Cheshunt, also staged a representative collection of Roses, including bushes and standards. The plants were well grown and exceptionally well flowered. Another splendid group of Roses was staged by Mr. W. Rumsey, Joynings Nursery, Waltham Cross, the specimens of Niphetos in this collection being exceptionally fine.

Floral decorations were as usual very good, although few in number. Messrs. Perkins & Co., Coventry, staged some magnificent bouquets, wreaths, and baskets, amongst which a bouquet made of pink Carnations, Asparagus, and Grasses was exceedingly pretty. Miss C. A. Hassel, Southfleet, Gravesend, also showed epergnes and table glass tastefully arranged with appropriate flowers; and Mr. J. R. Chard, Brunswick Nursery, Stoke Newington, staged examples of his Arcadian table decorations.

FRUIT AND VEGETABLES.

There was a good and varied display for examination by the Committee. The fruit trees from Sawbridgeworth were much admired by visitors, and scarcely less so were the wonderful Strawberries from Hatfield, Cucumbers from Rowledge, and Apples from various exhibitors.

Messrs. T. F. Rivers & Sons' group of fifty fruit trees in pots comprised Peaches and Nectarines from 3 to 6 feet in height, also Cherries, Pears, Apples, and Oranges, all the trees bearing excellent crops of fruit. Noteworthy amongst them was a new very deep red Nectarine, the earliest to ripen of all, and a valuable acquisition, distinct from



FIG. 70.—BROUGHTONIA LILACINA. (See page 397).

the Early Rivers that was exhibited last year. A silver cup was unanimously recommended for the collection. Also from Sawbridgeworth came splendid dishes of Belle de Pointoise and Rockingham Apples, as well as good fruits of Allen's Everlasting, a very late dessert sort, and Jacquin, a clear, yellow, conical Apple, apparently as fresh as when gathered.

From the Marquis of Salisbury's garden at Hatfield (Mr. G. Norman, gardener) came a remarkable collection of Strawberries, comprising Noble, President, Marguerite, Sir Charles Napier, Auguste Nicaise, and Vicomtesse Hericart de Thury, a plant of each bearing its crop of ripe fruit, and a box of splendid fruits of each variety. The size of the fruits, especially of Auguste Nicaise and Marguerite, was remarkable, eight of the former weighing 1 lb. This was the finest exhibit of forced Strawberries yet placed before the Committee, and a silver cup was promptly recommended.

A. H. Smee, Esq., The Grange, Wallington (Mr. G. W. Cummins, gardener), exhibited twenty-one dishes of Apples and nine of Pears. Amongst the former Wadhurst Pippin, Lane's Prince Albert, Hoary Morning, and Devonshire Buckland, were large and firm. The Pears were chiefly stewing varieties (silver medal.)

Mr. Mortimer, Rowledge, arranged a wonderful display of Cucumbers, raised by himself, and distributed by Messrs. Sutton. The varieties were Matchless and Al, three boxes of each, also a new variety appropriately named *Success*. The fruits are dark in colour, of full size and perfect form, and merited the *first-class certificate* that was unanimously awarded. Two boxes of Tomatoes were also exhibited by Mr. Mortimer, and a silver Banksian medal was awarded for the whole excellent collection.

A similar award was adjudged to Messrs. James Veitch & Sons for upwards of fifty dishes of Apples, some of the most noteworthy being Seaton House, very firm and clear; Lane's Prince Albert, Gascoigne's Seedling, rich colour; North End Pippin, large, deep green, and firm; Bismarck, Duke of Beaufort, very large; Betty Geeson, Gloria Mundi, Barnack Beauty, Dumclow's Seedling, and Alfriston; Grand Duke Constantine had also kept wonderfully well. A collection of twelve varieties of Apples came from the Department of Agriculture, Victoria, clear in the skin, and generally good samples (vote of thanks).

Mr. J. Miller, gardener to Lord Foley, exhibited very large Mushrooms, also Norfolk Beefing Apples (vote of thanks). Cultural com-

commendations were adjudged to Mr. W. E. Wells, Hatton Hurst, Hounslow, for Strawberries; to Mr. W. Armstrong, Toddington, Winchcombe, for remarkably good and highly coloured Hale's Early Peaches; and to J. L. Maunsell, Esq. (Mr. E. Peter, gardener), Somerset Terrace, Guernsey, for Muscat Grapes. Votes of thanks were awarded to Lord St. Oswald, Nostell Priory, for Figs; to Mrs. Burton, Upper Court, Slough (Mr. Wicks, gardener), for Cucumbers; and to Mr. Bowie, Sutherlands, Reading, for Hero of Lockinge Melon.

A late dessert Apple, *Armored*, for which an award of merit was granted last year, was again exhibited by Mr. C. Ross, Welford Park Gardens, and a *first-class certificate* awarded. The fruit is medium sized, roundish, oblate, lower half yellow, upper half russet, flesh firm, yet tender and sugary. The fruits are said to keep till June.

Mr. E. Beckett, Aldenham House, Elstree, showed some splendid samples of Harbinger Lettuce grown in boxes, and presenting an Endive-like appearance. It was requested that the variety be grown at Chiswick.

ORCHID COMMITTEE AWARDS.

First-class certificates were awarded by the Orchid Committee to the following, which will be described another week:—*Odontoglossum crispum* Sanderæ, *O. Louryanum*, *O. Bleu* splendissimum, and *Phaius Sanderiana* from Messrs. Sander & Co.; *Cypripedium Southgateense* from Messrs. Lewis & Co., and *Cypripedium Vipan* from Captain Vipan. Awards of merit were made to the following:—*Cattleya Mendeli* Cookson's variety and *Cypripedium excellens* from Messrs. Sander & Co., *Cymbidium Lowianum viride* from Messrs. Lewis & Co., *Lælia purpurata* Handleyana from Mr. Jas. Cypher, and *Odontoglossum Wilkeanum* nobilior from Messrs. Charlesworth, Shuttleworth & Co. Botanical certificates were awarded to *Epidendrum Godseffianum* and *Oncidium Rolfeanum* from Messrs. Sander & Co., and *Zygopetalum graminifolium* from Mr. C. J. Lucas.

CUPS AND MEDALS.

Silver cups were awarded as follows:—To Baron Schröder (with the Williams Memorial medal), Sir Trevor Lawrence, C. J. Lucas, Esq., Messrs. Sander & Co., Mr. Jas. Cypher, and Messrs. Charlesworth, Shuttleworth, & Co. for groups of Orchids; to Messrs. Laing & Sons, Messrs. J. Veitch & Sons, and Messrs. Cutbush & Son for mixed groups; to Messrs. W. Paul & Son for Roses, to Mr. T. F. Rivers for fruit trees in pots, to Mr. A. Waterer for Azaleas, to Messrs. W. & J. Birkenhead for Ferns, to Messrs. R. Smith & Co. for Clematises, and to the Marquis of Salisbury (gardener, Mr. Norman) for Strawberries. Silver-gilt Flora medals were awarded as follows:—To Messrs. J. Carter & Co. for Gloxinias, Calceolarias, Pelargoniums, and Mimulus; to the Earl of Portman (gardener, Mr. Prinsep) for *Dendrobium nobile*; to F. Wigan, Esq., for a collection of Orchids; to Messrs. B. S. Williams & Son for a collection of Azaleas and Amaryllis; to Messrs. H. Low and Co., Messrs. Heath & Co., and Messrs. Lewis & Co. for groups of Orchids; to Mr. H. B. May for a collection of Ferns; to Messrs. Backhouse & Co. and the Guildford Hardy Plant Co. for alpine plants; to Messrs. Barr & Son for cut flowers; to Messrs. Kelway & Son for Pæonies; to Messrs. Laing & Son and Messrs. H. Cannell & Sons for Begonias; to Mr. T. S. Ware for Pæonies and cut flowers, also one for Begonias; to Messrs. Paul & Son, Cheshunt, for Roses; to Mr. C. Turner for Pelargoniums; to Messrs. James & Son for Pelargoniums and Calceolarias; to Messrs. Shuttleworth & Co. for a mixed group; to Messrs. Perkins and Son for bouquets; to Messrs. B. S. Williams & Son for a group of Orchids; to Mr. Phippen and Messrs. Peed & Sons for groups of plants; and to Mr. H. J. Jones for Pelargoniums. Silver Flora medals were awarded to Messrs. G. Paul & Son for alpine and cut flowers, to Messrs. Laing & Son for hardy flowers, to Messrs. Dobbie & Co. for Sweet Peas, to Messrs. Shuttleworth & Co. for Ferns and foliage plants, to Messrs. J. Veitch & Son for Gloxinias and *Streptocarpus*, to F. C. Jacob, Esq., for a group of Orchids, to L. de Rothschild, Esq., for Carnations, to Mr. W. Rumsey for Roses, to Messrs. J. & J. Hayes for Pelargoniums, to Messrs. H. Low & Co. for Ericas and Pelargoniums, to Messrs. Peed & Son for Gloxinias, and to Messrs. Wallace for Lilies. Silver Banksian medals were awarded to Baron Schröder for *Cœlogyne Dayana*, H. Mayhew, Esq., for foliage plants, Messrs. Reid and Bornemann for a group, Mr. M. Pritchard for Alpines, Messrs. Cutbush & Son for cut flowers, Messrs. Chard & Son and Miss Hassell for table decorations, Messrs. Peed & Son for Ferns and foliage plants, Capt. Elliott for Aroids, Mr. T. Gabriel for Calceolarias. Other awards are given under "Fruit and Vegetables."

FLORAL COMMITTEE AWARDS.

The following is the list of awards by the Floral Committee, and the most important of the plants will be described in a later issue. First-class certificates were awarded to *Pteris crista densa* from Messrs. R. Smith & Co.; *Dichorisandra musaica gigantea*, *Labisia smaragdina*, *Smilax argyræa*, *Stenandrium Lindenii*, *Tradescantia Reginae*, and *T. superba* from L'Horticulture Internationale; Azalea Mrs. Anthony Waterer from Mr. Anthony Waterer; *Pteris serrulata gracilis* from Mr. H. B. May; *Scolopendrium crispum fimbriatum* and *S. digitatum majus* from W. & J. Birkenhead; and *Selaginella elegans* from Mr. H. B. May. Awards of merit were given to Begonia Leopold Rothschild and B. Duchess of Westminster from Messrs. H. Cannell & Son; B. Duchess of Westminster (Laing's var.), B. Picotee, B. Laing's Triumph from Messrs. J. Laing & Sons; and Tree Pæony Snowflake from Mr. Thos. S. Ware; P. Orme from Messrs. Kelway & Son; Gloxinias Clivo, Cicely, and Claribel from Messrs. J. Veitch & Sons; Tea Rose Princess May from Messrs. W. Paul & Son; Carnation Mrs. H. Cannell from

H. Cannell & Son; *Dracæna Barsletti* and *Croton Reidi* from Messrs. J. Laing & Son; and seedling *Lobelia*, Barnard's Perpetual, from Mr. H. Barnard; *Pelargonium Princess May* from Messrs. J. & J. Hayes; and Carnation Mrs. J. Devas from Martin R. Smith, Esq. A botanical certificate was awarded to *Cyrtospernia ferox* from L'Horticulture Internationale.



HARDY FRUIT GARDEN.

DISBUDDING AND THINNING.—During the early periods of growth disbudding affords an excellent and ready means of regulating the future growth of fruit trees. Much of the growth that starts in spring, especially on unfruitful trees, is too rank and thickly disposed. To reduce it while still soft is an easy process; when it has become woody a knife is required, the finger and thumb scarcely being strong enough to effect a clean removal. Later on such shoots as need discarding and which may have become very gross and sappy should not be removed wholesale, but gradually, or in the case of stone fruits gumming might ensue. Hence the necessity of early attention so that serious checks may be avoided. Bush and standard trees frequently produce too much central growth. Reduce this as soon as possible to admit light and air freely to the remaining growths, which will be found later in the season to be quite thick enough.

THINNING FRUIT.—Apricots claim regular attention in removing the smallest fruit and any that may be inconveniently placed for development. This will suffice until the stones are becoming hard, when each fruit must have an average space of about 4 inches from its neighbour. Peaches and Nectarines may be thinned at the final reduction to 9 or 10 inches apart, the latter fruit, however, needing the least room. Plums on wall trees are always finer when freely thinned. Pears, especially dessert kinds, require all the assistance that good culture can give them, as well as their disposal on the trees to develop into fine specimens. Early thinning is therefore imperative unless the crop is very light. Dessert Cherries may be lightly thinned, and Morellos generally require a moderate amount of thinning, as the set of fruit is usually abundant. Unless freely thinned the full flavour of Cherries is not fully brought out. Later on Apples will require attention, as it is the same with this fruit as with others, the scantiest crop produces the finest examples, other points in good cultivation being followed up at the same time. Gooseberries swell in proportion to their ability to draw freely upon the juices of the tree, which they cannot do if they have many competitors on the same branch. The more, therefore, this and other crops of fruit are thinned the finer will be the fruit left. For ordinary purposes, however, Gooseberries do not require thinning, but the trees are better for being helped with something nutritious at the roots. The benefits of thinning fruit are not altogether confined to the production of superior examples as regards size and quality, but the general well-being of the tree is also assured. It is impossible for an overcropped fruit tree to fully perfect its burden of fruit, and at the same time build up properly constituted buds for the following year.

DESTROYING INSECTS.—The enemies of fruit trees are numerous and persistent in their attacks when through cultural inattention or other causes they gain a footing. Trees on walls are mostly attacked by aphides, red spider, weevils, maggots, and caterpillars. Any shoots which through oversight have become seriously attacked with black or green fly may be dipped or syringed with a solution of tobacco water, made by pouring boiling water at the rate of half a gallon upon 1 oz. of strong tobacco. Let it remain until cold, then strain and add a solution of 1 oz. of soft soap to a gallon of water. The caterpillars of the Gooseberry and Currant sawfly are on the point of hatching their eggs on the under side of the leaves. Flowers of sulphur will destroy them, the same remedy also curing mildew. One of the most effectual remedies for the destruction of the caterpillars of the winter moth, which attacks the young leaves and blossoms of Apples and other fruit trees, is spraying with the poisonous compound known as Paris green: 1 oz. of the powder is mixed into a paste with water, and added to 18 or 20 gallons of water, keeping it well mixed, and delivering it upon the infested foliage with a spray distributor. Repeated applications are necessary in order to reach newly hatched caterpillars. Many of the punctured leaves seen on wall trees are due to weevils, which work in the night. They must be sought for with a strong light after dark, having a white sheet spread on the ground below the trees on which they can fall, and thus be easily seen. All blistered or curled leaves ought to be picked off as soon as seen. Keep all wall trees well syringed now the flowering period is past; it will do much to keep down red spider and aphides, and benefit the trees considerably. Cut off the points of young shoots of Currants where aphides have badly attacked them.

TRAINING YOUNG GROWTHS ON WALL TREES.—Attention ought to be regularly given now to the proper training of the growths on wall trees, exercising judgment in selecting the best shoots for the purpose. Apricots, Peaches, and Nectarines bearing chiefly on the wood of the previous year should have a due quantity neatly nailed or tied in this season. Plums and Cherries may have young wood laid in in a

similar manner, allowing it to remain unstopped. This will bear when two years old. Other shoots for which no room can be found may be stopped at a distance of 2 inches from their base. These will form fruiting spurs. By constantly renewing with young wood the trees are kept fruitful. Avoid, however, overcrowding. Every shoot must have a fair share of sun and air in order to become fruitful in due course.

STRAWBERRIES.—Mulch without further delay all fruiting quarters with straw horse manure for eventually keeping the fruit clean. Look over plants in flower, and pick off all weak and late blossom. A dressing of any of the advertised chemical manures placed round the plants will prove beneficial when water is applied to the roots, or soakings of sewage. Nutrient applied in these forms when the flowers open will conduce to a good set of fruit, and aid it to swell to the largest size attainable.

FRUIT FORCING.

VINES.—*Early Forced Houses.*—It is not wise to allow ripe Grapes to hang long on the Vines at this time of year, for Black Hamburgh loses colour, and Foster's Seedling becomes dingy. Those are characteristics of black and amber-coloured Grapes respectively that hang for any length of time on the Vines when the sun is powerful. A slight shade afforded by a double thickness of herring or a single thickness of pilchard net drawn over the roof lights, breaks the force of the sun, and assists in retaining colour in the Grapes. When the Vines are cleared of the fruit give the inside borders a thorough supply of tepid liquid manure.

Destroying Insects.—Syringe the Vines thoroughly to cleanse them of dust and red spider, and if there is any scale or mealy bug set to work promptly to annihilate the pests. This can be effected, where there are no plants in the house, by proceeding as follows: Take 1 lb. of soft soap and dissolve it in 1 gallon of boiling water, adding 1 gill (half a pint) of petroleum. Churn the mixture violently with a force-pump as used for spraying, the mixture being forced back into the vessel, and continue until a cream (emulsion) is formed, then add hot water until 12 gallons of solution is formed, continuing the pumping into the vessel until the whole is thoroughly incorporated. Spray or syringe the Vines thoroughly on a calm evening with the solution at 100°, reaching well into every part of the Vines and house. Repeat the following evening, and the next, varying the direction of the spray or syringing each time. After that keep a sharp look out, and whenever a mealy bug is seen spray or syringe the Vines. This persisted in will cleanse the house of mealy bug, for they are spread over the Vines, and are easily reached and destroyed. The mixture will not injure the Vines if it is not too hot or too strong, and it effectually frees them of all insects.

The great evil in using petroleum is its saturating the soil and rendering it impervious to water. This can be prevented by spreading a couple of inches of any light material of an absorbent nature on the border, removing it when the Vines are cleared of the mealy bug. Where it is not necessary to have recourse to petroleum for the destruction of mealy bug and scale thorough syringing will be occasionally required to keep the foliage healthy. Fresh laterals will soon be produced, and an even spread should be maintained all over the Vines, pinching the gross growths and encouraging the weak, keeping them clear of the principal leaves which nourish the buds at their base. The covering or mulching having been removed from the outside border, with just sufficient of the lighter part left to protect the roots, a good watering with liquid manure may be given, but avoid making soil sodden by needless applications. Eschew heavy mulchings; nothing is better than an inch, or at most two, of fresh stable litter with the straw portion shaken out. Keep the ventilators open constantly when the weather is favourable, and in cold weather a circulation should be insured, even if recourse has to be had to a gentle warmth in the pipes.

Houses Started at the New Year.—The Grapes are well advanced in ripening, and require a circulation of warm, rather dry air constantly. Particular attention should be given to increasing the ventilation early, and there ought not to be anything approaching to dryness in the atmosphere whilst the Grapes are finishing, but on hot days damp the floor well to check evaporation, and allow the temperature to fall to 60° to 65° at night, with sufficient warmth in the pipes to prevent moisture condensing. If the Vines are heavily laden, and there is any fear of a lack of finish, allow plenty of time for growth by giving as long a night rest as possible, and admit air freely by day. Where the border is at all dry supply water thoroughly in the morning of a fine day, and when soaked in mulch with some light material. This will probably be sufficient to keep the border moist until the Grapes are cut, but in a mixed house water may be needed whilst the Grapes are hanging. Air is necessary to the sound keeping of Grapes, and moisture is essential to their plumpness and the health of the foliage, hence damping the floors must be resorted to occasionally. Allow a moderate extension of the laterals to encourage root action, but keep those of a gross nature well in hand, so as to cause an equal distribution of the sap. When the Grapes are ripe a minimum temperature of 60° is sufficient. A slight shade will tend to the Grapes keeping and prevent them losing colour to a great extent.

Early Muscat Houses.—The Grapes are now ripening and need a drier atmosphere than do Black Hamburgs, but avoid dryness at the roots, as that results in shrivelling, while a too dry atmosphere favours red spider and thrips. Air moisture, however, must not become stagnant, or "spot" is almost sure to appear on the upper side of the berries next the shank, and that soon spoils the finest of Grapes.

Muscat of Alexandria and Canon Hall are gross feeders, and do not finish well where there is a deficiency of moisture at the roots, therefore feed well either with liquid manure or top-dressings of superphosphate washed in with tepid water. The soil moisture will, to some extent,

compensate for the drier condition of the atmosphere, and will do no harm if a circulation of air is constantly maintained, and moisture is prevented condensing by a gentle warmth in the hot-water pipes. Lateral extension is the best safeguard against shanking along with a steady temperature, and sudden depressions and fluctuations should be avoided as they favour that evil.

Muscats when nearly ripe often scorch in leaves and berries under powerful sun, especially under large panes of clear glass after a dull period. Early ventilation regulated with the sun's increase, and in bright weather a single thickness of herring net drawn over the roof lights, are the preventives of scorching. Muscat of Alexandria Grapes ripened early in June are much esteemed, but to produce them the Vines require to be started by early December, and not hurried in the early stages, so as to secure as far as possible well-developed foliage, otherwise the old leaves of Muscats will not endure the early summer's sun.

Midseason Houses.—The Vines will be in various stages, according to the time of starting. Thinning the bunches and berries must have early attention, and be followed up so as to allow of the crops deriving the fullest benefit. Grapes swelling derive much support from the atmosphere, but the finish depends on the amount of matter elaborated and stored in the Vines; therefore lose no opportunity of ventilating early, and maintain a good heat through the day from sun, closing early with plenty of atmospheric moisture. Grapes that are stoning should have a regular temperature of about 65° at night, and 70° to 75° by day, with 10° to 15° rise from sun heat. Avoid overcrowding, yet allow a moderate lateral extension. Feed with liquid manure or phosphatic and potassic top-dressings washed in with tepid water. Fish guano, blood manure, native guano, and other fertilisers are excellent for Vines; the only thing needed is to give them early enough to benefit the current crop, and avoid overdoses. Grapes that have finished stoning will swell if fed sufficiently. Vigorous Vines carrying heavy crops will take almost any amount of liquid manure in well-drained borders, provided it is tepid and not too strong; but an examination should always be made of the soil, and when water is needed afford a thorough supply. Provide a little ventilation constantly at the apex, admit air freely in the early part of the day, and close early with a genial condition of the atmosphere. Maintain the temperature at 60° to 65° at night, 70° to 75° by day artificially, keeping through the day at 80° to 85°, and closing early so as to increase to 90° or 95°.

THE BEE-KEEPER.

APIARIAN NOTES.

TWO QUEENS IN ONE HIVE—A REVIEW.

I AM in receipt of a letter from a bee-keeper saying he had read my article on pages 363-364, and in comparing my plan with that of Mr. Wells he says, "There is a radical difference in the 'Wells' plan; the two stocks are divided by means of queen excluders, either metal or wood, so that the bees of both stocks intermix, and both lots of bees work into one super. As I understand yours, the two stocks are distinct, and that you take the bees and brood to build up the other. Wells' is really two queens in one stock, both bees working at one common entrance."

My correspondent advises me to acknowledge my mistake. Perhaps he has read something I have not. What I have read does not justify me in making any acknowledgment whatever that I have made a mistake. I am open to conviction, and if anyone shows me that I am wrong, then, but not till then, will I swerve from what I have said.

In what I have read there is not a single word about the bees working from any entrance or entrances, and what is as important, nothing about the size of the hive, which, to be successful with two queens, ought to be as large again as the ordinary standard hive. To work two queens in a standard hive would be little better than with one. All the different kinds of hives I have had for forty years past were well adapted for this kind of work.

As nothing is said about entrances I must assume there are two, because Mr. Wells says, "The method followed is to make a division in each hive by means of a thin, close-fitting, wooden dummy perforated with holes nearly, but not quite, large enough to pass a worker or queen through." This perforated division board is a mistake; instead of giving warmth from the one lot of bees to the other it creates a draught. The articles I have read are impracticable and contradictory, if we except the method of raising queens, which is similar to the plan I have so long taught and made clear. But the following quotations will fully show their nature:—"When supering time came round a sheet of excluder zinc was placed over the double set of frames, and the bees of both lots allowed free access to supers."

Not a word is said here about joining the two lots of bees, yet in almost the next breath we find: "It is well known to bee-keepers of any extended experience that the bees of two colonies

may readily be got to work amicably in one surplus chamber, so arranged as to extend over both brood nests, but these twin colonies did not prove a success, for reasons we need not here enter into. Neither must we take it that the plan consists of joining two stocks that the bees of both may help to fill the same set of supers." What is the plan, then? "What was set forth by Mr. Wells was his method of carrying out a simple expedient by means of which he gained the important advantage of having two laying queens wintered in each hive in order to secure doubly strong stocks of bees in spring." Exactly our plan, as is also the forming of nuclei, as well as is the plan of returning the supers to the prime swarm, if one should issue. Unless both queens have ample space to breed, better adhere to the one-queen system only, and keep strong single stocks. There is a decided inconsistency with former teachings to keep two queens breeding in one hive (which, by the way, should be at least 3 feet by 1 foot 6 inches inside, independent of the supers) until the honey season is past. The proper time of removing the oldest queen is about a month or six weeks before the close of the honey season.

Whenever hives are managed on any principle that demands extra or cumbersome hives it is troublesome and unprofitable. Mr. Wells's success does not prove his plan so much superior to other well-managed hives, as I find by letters from bee-keepers in Kent that their bees did equally well in 1891, managed with single queens, on the principle taught in this Journal. The failure of Mr. Wells's neighbours' bees will, in all probability, be found in working their bees according to the B.B.K.A. ideas and standard hives.

The foregoing will be sufficient to show the impracticable nature of Mr. Wells's plan, as related by the Editor of a bee paper, as it also shows the similarity in the practical working parts to what has appeared from time to time in the *Journal of Horticulture*. I have no intention of withdrawing any statements I have made, but disclaim the honour of recommending hives having two queens to work together, and protest against any modern bee-keeper appropriating the idea, even if it should be "with an amount of public spirit not too common in these days, to make known the method followed, in order that all bee-keepers may benefit thereby, as well as to increase the general honey production of the country." The apiary is the place to study bee matters, and laudation is not practice.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Messrs. J. Veitch & Sons, Royal Exotic Nurseries, 544, King's Road, Chelsea, London, S.W.—*General Plants and Novelties*.

Messrs. Fisher, Son & Sibray, Handsworth Nurseries, Sheffield.—*General Plants*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tomatoes (*Nemo*).—The fruits are attacked by the fungus that is figured on page 387 last week, but it has not spread to anything approaching the extent represented in the illustration in question. We think it may be arrested by the repressive measures indicated in our reply to "S. G. R."

Passifloras not Expanding (*E. G.*).—It is possible that the wood does not ripen so well as is desirable; and also it seems to us that the buds are so numerous that a number fail from exhaustion. Possibly some warm liquid manure would be helpful at a time when there is evidently great pressure on the plant's resources. The variety is, we think, *Empress Eugénie*.

Express Grape Forcing (*Incredulous*).—We have received the Sunderland paper you have sent, and in the report of a meeting of the Gardeners' Society it is stated that "Mr. Gilchrist exhibited a well-finished bunch of Black Hamburgh Grapes grown in ninety days." The "Grapes" would commence growing immediately the Vines ceased flowering. The report says nothing about the time when the house was

closed for starting the Vines. You will find a note on this subject in another column (page 394).

Marechal Niel Rose (*Inquirer*).—If the Rose is in a house in which it can be suitably treated, as is the case in the majority of structures in which this variety is grown, we should cut the long stems back after flowering to clean healthy wood towards the base of the rafters. It is desirable before doing this that the plant be kept dry, not syringed, and the roots should be in somewhat dry rather than very moist soil also. Some of the most successful growers give no water to *Marechal Niel* Roses planted out in borders after the cutting of the blooms commences and for a week or more afterwards. A rest is then given as indicated by the limp foliage, and the plants are in good condition for cutting back. By frequent syringings afterwards and maintaining a genial atmosphere fresh growths push freely, extend rapidly, and ripen during the season. The roots should only be kept moderately moist for a time after pruning, increasing the water supply with increasing growth, and supplement with liquid manure as the season advances. Strong well ripened annual growths produce the finest of blooms in abundance.

Fragrant Rhododendron (*H. W.*).—We have seen a plant grown under the name of *R. fragrantissimum* with flowers similar to those you have sent. The name is appropriate. The culture is practically the same as that of ordinary greenhouse Azaleas, and the plants grow well in a compost of limeless loam, peat, leaf soil, sand, and bruised charcoal pressed very firmly. It is most important that the soil does not get too dry at any time, or the hair-like roots will shrivel, while they decay in stagnant soil. Success is very much a question of good judgment in watering and growing plants in a light house; when small a frame is suitable for them. In July they may be placed outdoors to ripen, taking care to shade the pots, to which worms must not have access, and the soil must not be saturated by drenching rains. The growths ripen perfectly in suitable light well-ventilated structures. Permit no seed pods to form; syringe after flowering to promote healthy growth, and if this is ripened flowers will follow.

Mossy and Weedy Lawn (*F. C.*).—The moss, a *Gymnostomum*, and the weed, an *Arenaria*, are evidence of soil sterility. There is no better dressing for lawns in such condition than a mixture composed of the debris of the rubbish heap, with one-sixth of quicklime allowed to lie a few weeks to sweeten, turning the heap once or twice at intervals of about six weeks. Such material should be applied in autumn at the rate of thirty cartloads per acre, distributing it evenly, and in spring rake off the rough portion. This will enrich the soil, and a better growth of grass will follow. If the above cannot be given, the lawn may be dressed early in spring with soot, wood ashes, and quicklime in equal parts, at the rate of a peck per rod. The rain will wash it in, and the brownness of the turf, occasioned by the destruction of the moss, will disappear with the growth of the grass. Or the following mixture may be applied in autumn or early spring:—Steamed bonemeal, 5 cwt.; k-nit, 2 cwt.; sulphate of iron, $\frac{3}{4}$ cwt., mixed per acre. For present use, 3 cwt. superphosphate and 2 cwt. of sulphate of ammonia mixed, may be evenly distributed on an acre of lawn in moist weather.

Tomato Plants Failing (*S. G. R.*).—We are sorry to inform you that the plants you have sent are devoured with the fungus. It is a serious case. We do not know whether the plants are past recovery or not; but before uprooting them we advise you to follow the practice so clearly detailed by Mr. Woodcock on page 215 of our issue of March 24th of the present year, and which gave such satisfactory results. If you do not happen to have the number a copy can be obtained on your sending 3½d. in stamps to the publisher. We have no doubt the attack has been precipitated by the succulent condition of the plants. We have uttered many words of warning on this subject. The soil has been too rich and too light, and it is not unlikely the house has been kept too moist and close. Very firm growth in firm and not rich soil is the best for resisting fungoid attacks, and by feeding the plants when fruiting, they will yield abundant crops. The turf you send is suitable for Cucumbers, but no doubt would be improved by an admixture of wood ashes, also periodical top-dressings when the plants are bearing would be advantageous. If you had planted the Tomatoes in ordinary field or garden soil that would grow good Potatoes the plants would not, we suspect, be in the condition we are so sorry to see.

Peaches Infested with Mildew (*H. H.*).—The dense greyish patches on the skin of the fruits are the growths of a mildew, *Oidium leucoconium*, an early condition of the fungus *Sphaerotheca pannosa*, which is very common on Roses in some localities, and on Peach growth and fruits. It first appears as a minute roundish speck of whitish powder, slightly raised on the skin, and rapidly spreads over the fruit, living on the outer surface of the cells. The patches often cover a considerable portion of the fruits, those badly infested falling, whilst others which do not fall swell irregularly, are sometimes useless. Happily, the mildew succumbs to early treatment with flowers of sulphur dusted on the affected parts; but it is best overcome by sulphur in solution, either in the form of bisulphide of calcium or sulphide of potassium. These can be had at the chemists, but they must be fresh, employing half an ounce to a gallon of water, and syringing on the trees, repeating as necessary. We use the bisulphide of calcium made after the following formula:—"Flowers of sulphur 1 lb, quicklime 1 lb. Slake the lime in a pan, add the sulphur and a gallon of water. Incorporate thoroughly, heat, and boil gently for a quarter of an hour, keeping constantly stirred. Allow it to settle, and when cool pour the super-natant liquid into a stone bottle, and keep it well corked. For use, mix a pint with 12 gallons of water, or a quarter of a pint in 3 gallons." Spray the trees liable to mildew before any signs of the disease appear, and always before the leaves are 2 inches long, con-

tinuing the spraying at fortnightly intervals until the foliage is well developed, when there is little to fear from mildew. Evening is the best time to apply the solution. In cases of attack, act promptly with two or three forcible sprayings on alternate evenings. Syringing may be practised instead of spraying, but the latter is more effectual and economical. An occasional forcible syringing with clear water should be given the trees, one good syringing being more effectual than many sprinklings in washing off and destroying the spores, and where syringing is properly attended to there is little or no mildew on Peach trees under glass. Where syringing or spraying is undesirable on account of plants flowers of sulphur should be freely dusted on the trees, especially on the affected parts, and rubbed on the parts of the fruit infested with mildew gently with the finger. That will arrest the spread of the mildew; but it is better to prevent its attacks than to apply remedies, for none will efface the effects. See that there is no deficiency of moisture at the roots of the trees, and afford thorough supplies of water or liquid manure when needed.

Cross Trellises in Peach Houses (R. C.).—The plan of cross trellises, instead of having them below the roof increases the extent considerably, the trellises being about 4 feet 6 inches apart, and taken from 1 foot of the ground to within that distance of the glass. Each trellis will afford space for one tree trained fan fashion. It is important not to have the trellises too close, and not to allow the upper part of the trees to become too crowded with wood, so as to deprive the lower part of the trees of light and a due amount of sap. It is a very good plan, but remember the finest fruits are borne on trees trained to trellises near the glass, yet some very good Peaches are grown on trees trained to cross trellises.

Cropping Peach Trees in Pots (W., Reading).—It is always wise because safe to err on the side of under rather than overcropping fruit trees, especially those grown in pots. About one and a half dozen fruits to each vigorous tree would be a fair crop, but you must take the variety into consideration. If the trees are growing freely and make much wood they are capable of carrying more fruit, but if sturdy and not making much wood leave the number named; if weak in growth leave less. There is no objection to use perforated zinc over the ventilators in summer, provided the perforations are a good size and as abundant as the material will allow. The sheets with large perforations answer perfectly, especially where the openings for ventilation are large. Avoid summer shading if you can possibly help it, as Peach and Nectarine trees cannot have too much sun. Early ventilation and having the leaves dry before the sun acts powerfully upon them is the best safeguard against scorching.

Camellias and Azaleas (W., Reading).—If the Camellias are making a good growth they may be shifted into larger pots now or just after the buds set, and whilst quite small; but if not growing freely leave them as they are for another year, unless they are very much root-bound, when they may be potted. Camellias and all hardwooded plants are best when under rather than over-potted. A size larger pot is all the shift they should be given at one time, and Camellias do not require this oftener than every second or third year. Turfy loam and fibrous peat in equal parts, with a little leaf soil or old cowdung, and a free admixture of sand, grow Camellias well, providing very efficient drainage. The more fibrous the loam and peat, both of which should be light rather than heavy or spongy, the better. Similar remarks apply to the Azaleas. Avoid overpotting, and do not give large shifts—that is, shift from 48's into 32's, and from the last into 24's. Azaleas require a compost of very fibrous sandy peat, and they can hardly be potted too firmly, providing good drainage, and adding sand liberally to the peat, about one-sixth being necessary in most cases.

Concentrated Manure for Vines and Garden Crops (G. H. H.).—We conclude from the large amount of sulphate of lime (gypsum), which is used to promote the nitrification of organic matter, that night soil enters largely into the composition of the manure of which you submit an analysis. It contains every essential element needed by Vines, but not in due relative proportion, and is rich in organic matter, which, by the large amount of lime, will be converted into nitrates, chiefly of calcium (lime). This will strengthen the Vine wood and conduce to high finish in the Grapes, provided the foliage is kept clean and not crowded. The phosphate of lime is rather low, also the amount of potash; therefore, for Vines, an addition of steamed bone-meal (not superphosphate, as there is abundance of sulphuric acid already) and of nitrate of potash would render the manure more valuable for them, and counteract the inimical effects likely to follow the excess of acid. The alkaline salts are also excessive, but the lime, as already stated, will modify their effects, rendering them beneficial instead of harmful. We should use the manure for Vines in the following proportions: the concentrated manure three parts, steamed bonemeal one part, and nitrate of potash (saltpetre powdered) half a part, mix and apply at the rate of 4 ozs. per square yard at intervals of about six weeks up to the Grapes changing colour. The latter dressing may not benefit the current crop greatly, but it will prevent exhaustion, and fortify the Vines for next year's bearing. The manure is calculated to benefit garden crops generally, especially where the soil is deficient in lime and alkaline matters.

Names of Plants.—(E. J. W., Leeds).—A variety of *Fritillaria meleagris*, the Snake's Head Lily; it is a native plant. (H. W.).—*Rhododendron fragrantissimum*; see correspondence. (T. S.).—*Cyrtanthus obliquus*, a native of the Cape of Good Hope. (A. A.).—The Rose is probably *De Meaux*, a miniature form of *Rosa centifolia*, and popularly known as the Pompon Rose. (T. L.).—We cannot name the Rose, which is one of the innumerable florists' varieties, the names of which can only be obtained by comparison with others in a large collection or at a show.

The variety can be increased by budding or striking cuttings whether you have the name or not. If you desire to purchase plants send a bloom to one of the great Rose-growing nurserymen, and he will send you named plants if he has them.

COVENT GARDEN MARKET.—MAY 25TH.

A GOOD business doing, but only at low prices.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	to	5	0	Grapes, New, per lb. ..	3	6	to 4 0
Apples, Canada and Nova Scotia, per barrel	12	0		20	0	Lemons, case	1	0	15 0
Apples, Tasmanian, per case.. ..	7	0		12	0	Oranges, per 100 ..	4	0	9 0
						St. Michael Pines, each ..	3	0	6 0
						Strawberries, per lb. ..	1	0	4 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	1	0	Mustard and Cress, punnet	0	2	to	0	0
Bect, Red, dozen	1	0		0	0	Onions, buuch	0	3		0	5
Carrots, bunch	0	4		0	0	Parsley, dozen bunches	2	0		3	0
Cauliflowers, dozen	2	0		3	0	Parsuips, dozen	1	0		0	0
Celery, bundle	1	0		1	3	Potatoes, per cwt.	2	0		3	0
Coleworts, dozen bunches	2	0		4	0	Salsafy, bundle	1	0		1	6
Cucumbers, dozen	2	6		4	6	Scorzonera, bundle	1	6		0	0
Endive, dozen	1	3		1	6	Seakale, per basket	1	6		1	9
Herbs, bunch	0	3		0	0	Shallots, per lb.	0	3		0	0
Leeks, bunch	0	2		0	0	Spinach, bushel	3	0		3	6
Lettuce, dozen	1	3		1	9	Tomatoes, per lb.	0	4		2	4
Mushrooms, punnet	1	6		2	0	Turnips, buuch	0	0		0	0

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.

Orchid Blooms in variety.

	s.	d.		s.	d.		s.	d.		s.	d.
Arum Lilies, 12 blooms ..	2	0	to	4	0	Myosotis or Forget-me-not,					
Bluebells, dozen bunches ..	0	9		1	0	dozen bunches.. .. Scilly	2	0		4	0
Bouvardias, bunch	0	6		1	0	Narciss (various), Scilly					
Carnations, 12 blooms ..	1	0		3	0	dozen bunches.. ..	2	0			
Carnations, Malmaison, 12						dozen bunches.. ..	0	6		1	6
blooms	2	0		6	0	Peonies, dozen blooms ..	1	0		2	0
Cineraria, dozen bunches..	6	0		9	0	Pansies, dozen bunches ..	6	0		9	0
Cowslip, dozen bunches ..	1	0		1	6	Pelargoniums, 12 bunches	4	0		6	0
Daffodils (single), doz. bnch.	1	6		6	0	„ scarlet, 12 bunches	1	0		2	0
Eucharis, dozen	2	6		5	0	Polyanthus, dozen bunches	0	6		0	9
Euphorbia jacquiniæflora						Primroses, dozen bunches	0	6		0	9
dozen sprays	2	0		3	0	Primula (double) 12 sprays	2	0		8	0
Freesia, dozen bunches ..	2	0		4	0	Orchids, per dozen blooms	0	9		2	0
Gardeuias, per dozen ..	1	6		4	0	Roses (indoor), dozen ..	2	0		4	0
Lilium longiflorum 12						„ Red, per doz. blooms..	1	0		3	0
blooms	2	6		4	0	„ Tea, white, dozen ..	2	0		4	0
Lilium (various) dozen						„ Yellow, dozen	4	0		6	0
blooms	1	0		3	0	Spiræa, dozen bunches ..	0	6		1	0
Lily of Valley, doz. sprays	0	6		0	10	Tuberose, 12 blooms.. ..	2	0		6	0
„ doz. bunches ..	3	0		9	0	Tulips, dozen bunches ..	4	0		5	0
Maidenhair Fern, dozen						White Lilac (French) per					
bunches	4	0		8	0	bunch.. .. .	2	6		3	6
Marguerites, 12 bunches ..	2	0		4	0	Violet Parme, per bunch ..	1	0		1	6
Mignonette, 12 bunches ..	2	0		6	0	Violet, English, doz. bunch.	2	0		4	0
						Wallflowers, dozen bunches					

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Genista, per dozen	6	0	to	10	0
Arum Lilies, per dozen ..	6	0		9	0	Geraniums, Ivy	6	0		9	0
Azalea, per plant	2	0		3	0	Lilac, each	2	0		3	6
Calceolarias, per dozen ..	4	0		8	0	Lobelia, per dozen	4	0		6	0
Cineraria, per dozen	4	0		8	0	Lycopodiums, per dozen	3	0		4	0
Cupressus, large plants, each	3	0		5	0	Marguerite Daisy, dozen ..	6	0		12	0
Dracæna terminalis, dozen	24	0		42	0	Mignonette, per dozen ..	6	0		10	0
„ viridis, dozen	12	0		24	0	Musk, per dozen	3	0		6	0
Erica various, per dozen ..	12	0		24	0	Myrtles, dozen	6	0		9	0
Euonymus, var., dozen ..	6	0		18	0	Palms, in var., each ..	1	0		15	0
Evergreens, in var., dozen	6	0		24	0	„ (specimens)	21	0		63	0
Ferns, in variety, dozen ..	4	0		18	0	Pelargoniums, scarlet, doz.	4	0		6	0
„ (small) per hundred	8	0		12	0	„ per dozen	9	0		18	0
Ficus elastica, each	1	6		5	0	Rhodanthes, per dozen ..	6	0		8	0
Foliage plants, var., each ..	2	0		10	0	Saxifraga pyramidalis ..	1	6		2	0
Fuchsia, per dozen	6	0		12	0	Spiræa, per dozen	8	0		12	0

Bedding Plants in variety in pots and in boxes.



PLANT FOOD.

AGAIN has Mr. Thomas Brown given invaluable advice on this subject directly to the members of the Norfolk Chamber of Agriculture, and indirectly to every agriculturist. Fortunate indeed are the members of the West Norfolk Farmers' Manure Company to have such an able chemist as manager, for they can trust him entirely to mix their manures more thoroughly than they could do, and to send them fertilisers adapted to their requirements. The sum and substance of his advice was to avoid doubtful nostrums, however tempting in description; to seek for phosphatic plant food in superphosphates, or in bone manure if priced fairly; for nitrogenous plant food in nitrate of soda or in sulphate of ammonia; and for potassic plant food in kainit or muriate of potash; to buy with a guarantee, and seek the advice of a competent chemist.

Sprengel and Liebig had especial mention as pioneers in this work, Sprengel as the first to investigate the properties of soils,

and to demonstrate in 1839 the importance of the mineral constituents therein; Liebig as having in 1840 "built up the science of agriculture" by the publication of his great work, "Organic Chemistry in its Application to Agriculture and Physiology," in which he showed that humus builds up plant life, that plants derive their acid from the carbonic acid of the atmosphere, that their hydrogen comes from water, their nitrogen from ammonia in the air and the soil, their sulphur from the sulphates which abound in all soils, that the mineral matter constituting the ash of plants is supplied by the soil, that this mineral matter is absolutely essential to vegetable life, and that soil fertility cannot be maintained unless the mineral substances withdrawn by cropping are restored. His four laws of husbandry which form the basis of modern and scientific agriculture were then demonstrated and established by experiment. (1) A soil can be termed fertile only when it contains all the materials requisite for the nutrition of plants in the required quantity and in the proper form. (2) With every crop a portion of these ingredients is removed; a portion of this portion is again added from the inexhaustible store of the atmosphere, the remainder must be restored by man. (3) The fertility of the soil remains unchanged if all the ingredients of a crop are given back to the land; such a restitution is effected by manure. (4) The manure produced in the course of husbandry is not sufficient to permanently maintain the fertility of a farm, it lacks the constituents annually absorbed by crops and live stock.

After according due notice to the labours of Messrs. Lawes and Gilbert, more especially of their demonstration that soil well supplied with minerals, but devoid of nitrogen, is as unfertile as one containing an abundance of nitrogenous matter but deficient in the mineral ash constituents, Mr. Brown showed how entirely his views are in accord with those of other chemists of the day about soil exhaustion, its remedy or prevention; that phosphates, nitrogen, lime, and potash are the only essential elements of plant food which we have to supply, and that all the other constituents of plant ash may be ignored. We make especial mention of this fact, because magnesia, iron, and silica are still occasionally recommended as necessary to add to manure mixtures. Such advice is sometimes misleading if not mischievous, and we strongly recommend puzzled home farmers to write to Mr. Brown about their soils, crops, and requirements. Phosphates it was shown are needed, and repay application on almost all our soils. So much has been removed in corn, in meat, in milk, in roots, that even the fertile virgin soils of America are showing exhaustion. Even the rich and deep soils of our marshlands are greatly benefited by the application of superphosphates. Nitrogen is in equal demand, but potash is not required so generally. Its absorption by crops from the soil is always slow, very much soil containing sufficient for hundreds of years of ordinary farm practice. On the other hand, some soil under cultivation is deficient in potash; this is easily ascertained by using potash for part of a crop and withholding it from the remainder.

When a farmer has held his farm for a few years he ought not to use manure wastefully. He now knows the amount of food substances exported from the farm in crop and stock, he also knows the amounts brought to the farm in superphosphates, bone manure, cake, and nitrates; a balance is easily struck, the deficiency made good, and so the soil is kept stored with fertility without waste, and full crops are a certainty. At first there must be repeated trials to ascertain what manurial substances give the best returns, these must then be obtained singly and by guarantee, and then thoroughly mixed at the farm. In Belgium, France, and Germany this has now become unnecessary, Government agricultural stations having been established, where, besides conducting experiments and original research, the chemists are bound to analyse without charge any sample of a manure sent by a farmer buying more than half a ton, or of a feeding material where five tons are bought. The composition of such manure or

feeding stuff must be given by the seller with the invoice. This practice has afforded to the farmers such familiarity with the terms of the analytical table, with the modes of calculating the values therefrom, that both fraud and imposition are becoming things of the past. It is clearly for our advantage to have similar establishments. In this, as in so many other things, we have allowed other countries to slip past us, and yet a quarter of a century ago England was the only country where chemical manures were used. Technical education will set us right in this matter. The spread of scientific knowledge on the continent has led even the very small farmers to seek the aid of the chemist; it will do so here in due course, and then we shall have plant food estimated at its true worth, and applied with proportionate discretion and certainty.

WORK ON THE HOME FARM.

Let all possible care be given to calves now; do not let bright weather induce you to turn them out to grass prematurely. In point of fact there should be no absolute turning out of calves at all, only a run in the calf paddock in warm dry weather, with yard and lodge at hand for shelter. Thicken the milk gradually with meal to give it the consistency of gruel and render it more nourishing, and get them to eat hay early. A little patience at first is rewarded by thrifty healthy animals. Management tells here as in most other things, the aim being to keep the calves plump while growth goes freely on without an extravagant outlay or an undue amount of forcing. Never let it be forgotten that for calves to thrive they must have shelter from cold and wet, and must always be kept thoroughly dry and comfortable. We recently saw a lot of calves in a tolerably snug hovel, with the bedding saturated with urine, upon which they had to lie down. Here was an instance of penny wise pound foolish practice, in calves running the risk of disease for the sake of avoiding necessary outlay upon the purchase of litter. This is one of several reasons which we have for wishing every dairy farmer to have enough arable land to produce straw, corn, and green crops for home requirements.

Once again have six-week pigs become worth a pound, and they are likely to continue so for some time, as recent low prices led to the rash sale of so many breeding sows. This will brighten matters somewhat for home farmers who have many surplus litters to dispose of, but prudence forbids anything approaching a clearing of young swine stock. Though the season is so backward, harvest time will come round again, and due provision must be made for stubble feeding. A moderate surplus in each kind of live stock answers best at every home farm where the provision of a full and regular supply of produce for the wants of a large establishment is of primary importance. All else is comparatively a secondary matter.

Butter should now be at its best both in colour and flavour, and close attention should be given to every detail in cow and dairy management, because negligence in any one thing may spoil the butter. Rigid cleanliness is the main thing, but it must affect everything. How frequently do we see clean milk pails taken into dirty cowhouses by dirty cowmen, to cows whose coats reek with filth! Pure milk is an impossibility under such conditions, it is tainted by every foul thing near it, and to have the best possible results we must have pure air, pure water, wholesome food, with the cows and everything about them quite clean. At one time after complaints about butter supplied from home farm to house, we went to the dairy and dairywoman; now we go to both dairy and cowhouse, making a point of being present frequently during the milking, as well as looking closely after other matters.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1892.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
May.		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 15	30.013	56.1	49.2	S.	52.0	57.9	43.0	94.9	36.6	0.010
Monday .. 16	29.794	54.4	46.8	S.W.	51.0	61.3	43.9	115.1	37.0	—
Tuesday .. 17	29.899	56.8	48.9	N.	50.3	64.3	47.9	113.9	42.3	0.010
Wednesday 18	30.123	57.8	50.2	S.W.	51.9	65.4	46.5	105.7	40.6	—
Thursday .. 19	30.041	56.7	50.4	W.	52.2	61.3	43.6	101.7	41.4	0.167
Friday .. 20	29.833	59.3	54.0	W.	52.0	65.3	51.2	115.1	44.6	—
Saturday .. 21	30.102	54.8	47.3	N.	51.9	67.1	42.3	112.6	36.1	—
	29.979	56.6	49.5		51.7	63.2	45.9	108.4	39.8	0.187

REMARKS.

15th.—Occasional sunshine, but generally overcast and showery.
 16th.—Windy, with alternate bright sunshine and slight showers.
 17th.—Generally fine and sunny, but a slight shower at 11 A.M.
 18th.—Cloudy almost throughout; occasional spots of rain in afternoon and evening.
 19th.—Sunny early; rainy from 11 A.M. to about 3 P.M., and heavy rain from 0.45 to 1.45 P.M.; a little sun in afternoon.
 20th.—Overcast, with spots of rain early; fine day, with frequent sunshine.
 21st.—Fine and sunny throughout.
 In almost all respects an average week for the time of year. A trifle cooler than the preceding week.—G. J. SYMONS.



ONWARDS, slowly perhaps, but surely, creeps the tide that has turned in favour of English Tulips. The term is not a common one, for the flowers referred to are those usually classed as Florists' or Late varieties, but it has something beyond insular pride to recommend it. In the 333 years which, according to a brochure by Tripet aîné, have elapsed since Conrad Gesner brought *Tulipa Gesneriana* from Constantinople, marvellous work has been accomplished by hybridisers in various countries with the species named as a parent, but it is in England that the properties which are most esteemed in the best Tulips of to-day—perfect form, smoothness, substance of petal, and clean base—were developed. There are florists' Tulips in abundance which possess none of these qualifications; and the time has come for finding some distinctive appellation for the noble class of flowers which pay tribute to the English florists' skill.

The evolution of the Tulip carries us back far into the past, and gives us new views of the progress of the centuries. While it has been built up step by step in the calm and quietude of many a sunny British garden, the world without has been torn by countless convulsions. Some of the varieties bear the impress of the fierce times of their birth in the names that have been given to them; for instance, *Bataille d'Eyleau*, *Bonaparte*, *Lord Collingwood*, *Simplon*, and *High Admiral*, all of which are represented by coloured plates in "*The Florists' Guide*" of 1827-1829. The raisers of most of the old Tulips have long ago passed into the silent land, and their names do not live in song and story. The great world is oblivious of them, but an inner circle remembers them as workers for the good and the beautiful, and honours them as peaceful benefactors.

Tulip raisers in England, Holland, France, and other countries worked simultaneously, and it is natural enough that the products of each school should have a common stamp, but sale and interchange went on actively, and thus most large collections exhibited mixed types. It is so still. Inferior varieties gained a footing, and, instead of being rigorously excluded on their character becoming known, were treated with indulgence. Thus it is that we find a type of bloom totally dissimilar from our own most cherished flowers even now, and it is impossible to avoid the belief that this inclusion of poor forms had much to do with the gradual decline of the Tulip during the past half century. It is difficult, at all events, to otherwise account for the strange fact of a flower so full of interest, of such easy culture and of such unique beauty, losing ground; rather would it have been expected that its adherents would go on increasing year by year. This consideration teaches us that we owe much to those who are not only endeavouring to give a fresh impetus to Tulip culture, but are also devoting assiduous care to the selection of their collections. The lessons of the past are of the greatest value in teaching us to avoid its errors.

It would be repeating a very old and threadbare story to dwell upon the Tulip mania of former days. Those who have the true welfare of the flower at heart cannot recall the epoch without pain, for they know that to all such sensations there must be reactions, and too often the craze of a generation is followed by the neglect of a century. Paradoxical as it might appear without reflection, the popularity of the Tulip in the past is one of the

greatest obstacles to a thorough revival at the present time, and lifting it up to anything approaching its former level is a task worthy of the best energies of the "forlorn hope," who are now struggling to revive it. They are hopeful, however, rather than despairing. They are content with any progress, however slow, and do not covet a rush into popularity, which would assuredly be ephemeral and fleeting. New growers will spring up by ones and twos, perhaps, instead of hundreds; but that will not matter so long as they bring the whole-hearted, patient, loving spirit of their forefathers to bear on the best material that the latter's hands had fashioned, for the effects of their work will spread and bear good fruit.

The absorbing interest of the English Tulips does not lie solely in their beauty of form and rich, quaint markings. Their life-history is not the unbroken, uneventful one that other flowers enjoy. There comes a time when the self flower is a self no more, the rose, scarlet, or violet shining above the silvery ground of the *Bybloemens* and *Roses*, or the golden base of the *Bizarres*, breaking into marvellous featherings and flamings of colour. The phenomenon cannot be considered unmoved. In gazing upon the self *Bybloemen* *Talisman* and upon his brilliant broken prototype Goethe's immortal legend comes to mind, and it is recalled how Faust bartered his soul for such an exchange as this. Or turning from the legendary to the natural, we think of the contrast between the dull cocoon and the brilliant, fluttering butterfly, and ask if it is more wonderful than the transformation of these extraordinary flowers. The new shades do not vanish as quickly as they come. They are not the vagaries of a day, mere ripples on the stream of time, but, once broken, remain to dazzle and delight those who see them. The breeder flower is but the canvas prepared for the painting, and when in due course the colours are mixed and the picture completed, it is one that will not fade under the hand of time.

The period of probation is often a long one, extending over many years, and it is not surprising that attempts to hasten it have been made by those impatient to see what the rectified flowers are like. But the plants have pursued the even tenour of their way unmoved, and the streak or flame has been evolved in its own good time. Mr. Horner has told in the *Journal* of the simple expedient advised by one grower—to purchase bulbs from Holland. That the prescription came from a Dutchman hardly needs mentioning. Long before that, however, a secret for hastening the breaking was retailed by a British florist at (to quote an old work) "the trifling sum of one guinea." Notwithstanding, however, that this generous offer was supported by a strong editorial recommendation, Tulip fanciers appear to have proved sceptical, and consequently a subsequent offer was made to divulge the secret method "for the trifling sum of ten shillings." Whether this met with the expected response we have no evidence to show, but if it did it is to be feared that the plan proved to be a failure, as growers of the present day have to rely on the time-honoured resource of patience.

We do not propose to dwell at length upon the varieties and their respective merits now. Hints may be gathered upon these points in the notes on two collections that will follow in an early issue, and which are written by appreciative pens. We call attention to English Tulips as a class of garden flowers deserving widely extended cultivation. Amongst hardy plants it is difficult to find any to compare with them for combined beauty and ease of culture, while the phenomenon that their change of raiment marks is found in them alone. In the stately beauty of these noble flowers, in their wonderful substance and shapeliness, in their rich colours and brilliant markings, and in the change of life to which reference has been made, a store of pleasure and interest is provided that familiarity will deepen, and time cannot but intensify.

FORWARDS.

NEW LIGHT ON VINES AND POTATOES BY AN OLD GROWER.

WHEN the minority of our present race of horticulturists were young two incognitos were wont to be written in these pages. He of the highest aspiration wrote you frequently at that period upon destroying mildew, and ever and anon about tackling the fungus of the Potato. He of the cognomen "Forwards" wrote you that he "dared not employ a signature so high and significant as your correspondent." Dear old friend, he has long passed away to the majority, and I have really lived so long to see times so altered as to make me feel diffident about reclaiming the soaring appellations of the then young Cottage Gardener. My late friend subscribed himself "Forwards" in your pages only when he wrote about Potatoes, but surely he could honestly have done so in connection with both flowers and fruit. At any rate I have now written "Forwards" for a text about what I am going to say.

I was wont for some years before I left Woodstock to send a bundle of Esperione Vine cuttings to an old friend. Thanks, and an offer of whatever I might require in return, always came to me, though I never felt to require anything in return till I came here, when a large package, an *omnium gatherum*, of Roses, fruit trees, &c., were freely sent to where they were badly wanted, and amongst them was a Frankenthal Grape Vine, which was highly recommended to me as being excellent for eating, and better for wine-making. It was, but bad for the oïdium. It introduced the mildew to my Esperione, Royal Muscadine, and St. Laurent Vines, so that eventually I felt reluctantly compelled to expel the Frankenthal. Still the fungus remained, to become so troublesome that it caused me to plant a Fig for the purpose of occupying the house in lieu of the Vines. About this time last spring I was, knife in hand, about to fulfil my murderous purpose, when I happened to glance more intently at the Fig stems, and to find them infested with the scale. This led me to halt about the massacre of the Vines, as in avoiding the Scylla of mildew I might get drawn into the Charybdis of scale. Friends may say, "Why have allowed either?" Just so; but then friends may not be acting overseer, highway surveyor, &c., for two parishes, and churchwarden thrown in. Well, if "useful science," or rather, I should say, my good friend Mr. Peter Barr, sends a body Anti-blight Powder, a "thinking mind" may be excused for applying it to other purposes than that for which it was actually intended. My Vines were becoming smothered with mildew, and the thought struck me, "Be hanged if I don't try what effect this anti-Potato blight powder will have upon them." Smother was the word; they soon got it, also the Fig and the Tomatoes, myself taking an appearance of the proverbial "dusty miller." The smarting of my eyes led me to augur dispatch for the oïdium, and so it proved; and what was more, the scale disappeared from the stems of the Figs, and remained *non est* through the season, of which one of the Journal staff had ocular evidence. I have purposely neglected cleaning, or even pruning the Vines and Figs. The house remains also uncleansed, in order that the worst neglect that can be may present itself for a remnant of the powder, kept dry, by me, should the mildew or scale put in their unwelcome appearance. But the Vines and Figs, though for their looks confusion, are at my present writing free from their enemies, nevertheless I remain upon the *qui vive*—Malbec ready to hand.

Naturally I have received a good sprinkling of "wet blankets" from the bouillonists and the incredulous; but all through my practical life's work I have never taken the wet blankets much to heart, for if I had the present race of Potatoes (excluding a few old sorts, which may be almost counted upon one's fingers' ends) would not be in existence to operate upon, as directly or indirectly they have sprung from my first and later crosses, to be intercrossed and crossed again and again by others. Well, I have used what I may call my Potato instinct in regard to the applications of this powder—plus I have hauled yourself and other experienced horticulturists down to Sulhamstead to see for yourselves what were my results—are they not given on pages 193 and 341, Nos. 2240 and 2247?

I have made myself reticent because "one swallow does not make a summer," and I well know that one season's trial on my part would not clinch an important matter like this, perhaps it may take many seasons; but we are launched on the way to some conclusion, though whether the way to the expulsion of the Potato disease is to be the wet or the dry future experience will have to determine. I certainly should prefer a dry application to a sloppy one, and so I should surmise would the ladies and most amateur gardeners. I have received a great many letters upon this subject both from friends and strangers, and I will now beg you to allow me to ask forgiveness for not answering their letters. I could not satisfactorily, and without fear or favour, as may be gathered from what I have written above. But the season has now arrived

for me to begin the bellowsing amongst the Potato haulms, and I hope I shall live to see my friends here again to witness equally good results to those that befel me last year, though not to the end of the chapter, which ended for me analogously to the play of *Hamlet* with the Prince left out. I received a letter from my ever-youthful friend, Mr. Peter Barr, to say that Mr. Tait had arrived in London from Portugal, and that I might expect to see them both at Cottage Farm. You know I have always a change for dinner, so that does not signify; but I proudly left those crops of Potatoes all asprawl upon the ground where Tait and Buchanan's powder had been employed for their inspection. Alas! the gentlemen never came, but that early unexpected and disastrous frost did, and caught both me and my Potatoes napping. *Finis*.—ROBT. FENN.

HARDY FLOWER NOTES.

To the admirer of hardy flowers who seeks to include in his garden plants which will provide a constant succession of flowers, there is no month in all the year which can give so much delight as the month of May just gone; for, as Spenser says:—

"Then came fair May, the fairest maid on ground,
Decked all with dainties of her season's pride,
And throwing flowers out of her lap around."

Thus with the beauty and wealth of her flowers around us, we look, not only with delight, but with reverent admiration upon her lavish bounty, and seek to select from its bewildering plenty a few flowers to speak of. Pity is it that so few of our modern flowers have as yet inspired the poet's lyre. Had they been so long known as the Poet's Daffodil, *Narcissus poeticus*, now in flower, they would not have remained unsung. Even Spenser, before quoted, has not forgotten this Daffodil, for he speaks of

"Pale Narcissus, that in a well
Seeing his beauty, in love with it fell."

and though we dwell in what we are pleased to call a "matter of fact" age, there are some who, as they look on the broad pure white petals and crimson ringed crown of some of the best forms of *N. poeticus*, turn their thoughts upon the old legend, and with an inward smile at the fancy, think that, after all, the strange passion was an excusable one were the vision in the lake as beautiful as is the flower of foolish Narcissus. What, too, would our olden poets have said had they seen the magnificent flowers of such Tulips as *T. Greigi æstivans*, which opens daily its brilliant blossoms to the sunshine of May? The admirer of such ornaments of the garden may well reject the sentiments of Gay when he describes

"The gaudy Tulip's streaky red."

and feel more inclined to agree with the fancy of Carew, who, singing in praise of his mistress's lips, likened them to

"Leaves of crimson Tulips met
Guide the way,
Where two pearly rows be set
As white as day."

Yet even such expressive thoughts as these only show the utter impossibility of describing a flower like this. So brilliant and so sparkling is the colouring of this flower, which for so long has bloomed well nigh unseen on the steppes of Turkestan, that its counterpart is only to be found in the brightest of sunsets with its flushes of yellow and crimson, and its indescribable blending of hues. This may seem to be exaggeration, but let anyone see this flower in the pure air of my garden with the sunshine gleaming upon it, then these words will be admitted to be no language of hyperbole but literal truth. Feeling thus, it seems like sacrilege to describe in simple words this fine Tulip. I have previously flowered the typical Greigi and the variety *aurea*, but neither of these will compare either in size or in beauty with *æstivans*, with its broad, slightly undulated, deep green leaves, marvelously marked with the deep brown spots so characteristic of the species. If the reader can imagine a vastly glorified crimson and yellow Duc Van Thol, with sharper and more wavy petals about 4 inches long, opening in the sun, until the flower is nearly 7 inches across, and with a depth and glow of colour which I have seen in no Tulips save the varieties of *T. Greigi*, he will have an idea of its beauty. There can be no possible doubt as to the hardiness of this Tulip here. The one I have spoken of has been above ground all through the winter, and has not suffered in the slightest in what has been the most severe season here for many years.

In sharp contrast to the Tulip, yet in its way equally delightful, is the little Balearic Sandwort (*Arenaria balearica*), now creeping

up a sandstone block near the base of a sheltered rockery facing the south-west. Very beautiful is that close creeping screen of dense green foliage, scarcely rising above the surface of the stone to which it clings, and adorned with tiny, starry, pure white flowers rising above the foliage on short stalks, and opening with the sun. Planted at the base of a piece of sandstone, which it seems to prefer to any other stone, it will soon creep over it, especially if the stone is kept fairly moist. *A. balearica* was introduced from Majorca in 1787, and is found in several other of the Balearic Isles, and also in Corsica. It is of evergreen habit, and the flowers are freely produced over the plant, although there is only one on each stem.

Close to the little *Arenaria* is another white flower, perhaps one of the most admired of all the Buttercups in my garden. Few who see it and who are unacquainted with the botanical characteristics of plants would recognise in *Ranunculus amplexicaulis*, the Stem-clasping Crowfoot, a near relative of the yellow flower of our fields, so great a favourite with all children. Be this as it may, *R. amplexicaulis* is, despite its somewhat repellent name, a favourite with all who see its fine white flowers, with yellow centres, produced from one to six on each stem. Nor does the foliage detract from the beauty of the plant, as the handsome glaucous, undivided, ovate or lance-shaped leaves clasping the stem add to its beauty. It grows from 3 to 9 or 12 inches in height, according to the quality of the soil or the quantity of moisture at command. It is not, however, very fastidious, but I find it likes a fair amount of sunshine. It is strictly herbaceous, and its situation should be marked, in case its bundled roots should be injured during operations in the garden. Although occasionally met with it is still too rare in gardens, although introduced from the Pyrenees as long ago as 1633. It is also a native of the Alps and other European mountain ranges. *R. amplexicaulis* will be found figured in "Maund's Botanic Garden."

Flowering freely in another part of the garden is the beautiful Prophet Flower (*Arnebia echinoides*), one of the most desirable of our early yellow-flowered rock or border plants. It is now some years since its original introduction from Armenia, but I am unable to trace the exact date of its arrival in our gardens. Although it has been widely spoken of and highly prized it has not found its way everywhere, probably owing to the fact that it still remains higher in price than many of our border or alpine plants. This may be partly caused by the fact that its producing seed only rarely in this country militates against its rapid increase, and we have only two methods which may be usually adopted—by division or by means of root cuttings taken in the early months of the year. It grows plentifully in the Caucasus, Persia, Turkestan, &c., and a quantity of these plants covering the ground so freely as they are said to do with pleasing yellow flowers must form an attractive sight. But those of us who cannot see the Prophet Flower in its native haunts need not miss the genuine pleasure to be derived from a plant or two in our British gardens as we view its delicate yellow flowers marked on first opening with five black spots, fading gradually away, and which from the legend current in India are said to have been the marks of the fingers of Mahomet. One could gladly say more about this beautiful flower, but the little space left must allow of notice of one or two other plants.

Very pleasing now are some of the *Muscari* or Grape Hyacinths, and a description of the seventeen or eighteen species and varieties in my garden would not fail to interest some. Unfortunately the Grape Hyacinths have acquired a bad reputation for seeding, but in the case of the rarer sorts we would gladly wish they deserved the character. As, however, I wish to mention at least one *Erythronium* and one *Fritillaria* in addition, I shall only speak briefly of three *Muscari* now in flower. The finest as regards size and general effect is the large, deep, yet bright blue flowered *M. conicum* with finely formed spike. The others are *M. atlanticum* with a close spike of charming flowers of exquisite cornflower blue, and a somewhat rare, as I believe, variety of *M. racemosum* named *carneum*, and more worthy of its varietal title than the variety of *M. botryoides* bearing the same name. The variety of *racemosum* has much deeper coloured flowers, much nearer the tint known as flesh colour. Very pretty, too, has been the little *Erythronium Hartwegi*, a new Dog's-tooth Violet from North America, with yellow flowers produced from three to six on an umbel sessile at the ground, and having prettily marked leaves. Quaint and curious also are most of the *Fritillarias*, and some have a fantastic beauty all their own. One of the prettiest is *F. contorta*, which I have flowered for the first time, and which with its curiously contorted stem and pretty white flowers combines the fantastic with the beautiful. In flowers such as these we seem to see the work of Nature in her merry moods, and feel more than ever how deeply interesting and delightful is the study of these flowers, which defy the rigours of our wintry clime.—S. ARNOTT.



AERANTHUS (ANGRÆCUM) LEONIS.

THIS lovely little plant was discovered by M. Leon Humblot in the Comoro Islands in 1885, and was described by Professor Reichenbach in June of the same year. It is very dwarf, the leaves being about 6 inches long and sword-shaped; they are thick, leathery, and only cleft where they join the stem. The racemes carry from two to six flowers, each about 1½ inch across, and ivory white. The lip is very broad and rounded. The spur, which



FIG. 71.—AERANTHUS LEONIS.

is often 5 inches long, doubles back in a very peculiar manner. *Angraecum Leonis* (fig. 71), as this plant is now generally named, is not grown to any great extent, although it amply repays the attention bestowed upon it. Mons. Humblot discovered *A. Leonis* at an elevation of 5000 feet, and consequently it may be grown in an intermediate house; but the warm or East Indian

house suits it much better. The plants should be suspended near the glass in baskets filled with sphagnum. They require plenty of moisture while growing and flowering, and should never on any account be allowed to get dry. Given these conditions this interesting plant succeeds admirably. Two small plants have been flowering in the warm Orchid house at Kew recently, and were very attractive.—C. K.

SPOT IN ORCHIDS.

I HAVE pointed out on several different occasions that this disease is brought into existence by the method of culture the plants receive. I am more than ever convinced that this is the case, and have succeeded in arresting its progress and growing the plants out of it. I have seen whole plants destroyed, not only the leaves, but the pseudo-bulbs as well, therefore the cause and remedy may be pointed out. Spot generally makes its appearance during the winter, which is unquestionably the most critical period of the year for these plants. In very many cases the seeds of the disease have been sown during the season of growth. It may arise from the application of too much water, the tissues of the plants becoming surcharged with it. This not only entails double the work of evaporation by the leaves, but the actual temperature of the plant may be lowered if the water applied should be several degrees lower than that of the house. Again, the plants may be grown in too much heat and moisture with the addition of over-shading. This treatment results in rapid growth, but it is made at the expense of that stability which is essential to proper development. The plants are checked and predisposed to disease, which sooner or later develops itself. Heat, air, water, judicious atmospheric conditions, and shade are necessary to build up a perfectly healthy growth. If slow but sturdy growth is made the plants are healthy, and better able to resist disease of any kind. Cold water alone poured over the plants and persisted in will cause spot, and this is largely aggravated by such treatment as has been pointed out.

Spot is the result of a too low temperature during the winter, combined with too much water and too much moisture in the atmosphere. When this treatment follows the growth of the plants is made under unfavourable conditions, and what can be expected but disease of some kind? When spot appears amongst Cattleyas steps should be taken to prevent it spreading. This can be accomplished by raising the temperature, maintaining a drier atmosphere, and giving no more water than is absolutely necessary to keep the plants fresh and plump. The treatment during the growing season must also be regulated, so that the plants make strong pseudo-bulbs properly stored with nourishment instead of water. Half the failures that occur in the growth of these plants, independent of spot, are due to too much water.

At one time we treated Masdevallias to a much lower temperature throughout the year than we do now. The result was that the plants became badly spotted in the foliage. Our practice has been a similar temperature during the summer with plenty of air, but a higher temperature during the winter. This means a more average temperature throughout the year, and the result is that the plants have grown better and their foliage is free from spot. When the matter is fully considered the average temperature may appear suitable to their growth, but the variations to which they are subjected destroy them or, to say the least, bring about disease. I have known Phalaenopsis spot when planted upon blocks of wood with their bases in pans of water. Capillary attraction took place to such an extent that the plants were kept too wet. The plants overcame this condition by slightly different treatment, —namely, less moisture, a little more air during the season of growth, and no water in the pans during the winter. I have also cured this disease amongst Cattleyas by giving less water during the season of growth, more light and air, more heat in winter, careful watering, and less moisture in the atmosphere, being careful to admit a chink of this whenever favourable.—W. B.

AN AMATEURS' ORCHIDS.

At the rear of the large drapery establishment of Messrs. Morgan & Son, High Street, Great Marlow, I had the pleasure of inspecting, through the invitation of Mr. W. J. Morgan, the junior partner of the firm, his highly interesting and, in some respects, unique collection of Orchids. It is not often my good fortune to meet with a cultivator who has successfully mastered the technicalities of Orchid culture by the sole aid of his Journal and his own observations at such times as the onerous duties of a large business would allow. Mr. W. J. Morgan is an enthusiastic orchidist, and it is therefore not a matter of surprise that the increase of his floral treasures is in excess of the time he can possibly devote to them. One item I observed that reflected much credit on the cultivator, and to some extent accounted for the generally healthy tone of the whole collection,

was the very efficient way the potting, basketing, and blocking—a stumblingblock to most amateurs who receive no professional aid—was done. The quantity, quality, and density of the composts were most skilfully observed, and employed in the most approved manner for the various genera, species, and varieties treated. When I saw the plants in the short dull days of early spring the display of flowers was moderately gay, while the numerous racemes and panicles of many species of *Odontoglossums*, *Cymbidiums*, and *Oncidiums*, with the visible peduncles and buds of *Cypripediums*, *Masdevallias*, and *Lycastes* gave promise of a continuous display for some time to come.

Certainly the most noteworthy plant at the time of my visit was *Lycaste Skinneri*, a large plant, which was at that early date carrying four very large fully expanded flowers, while a number of flower buds, strong and healthy, were emerging from the base of the leading pseudo-bulb ready to replace them when their by no means transient beauty was gone. The following is a description of this distinct variety:—Sepals and petals white, delicately suffused with rose; lip large, slightly compressed, flesh-white in front, merging into lilac rose, and minutely spotted with crimson; the anterior lacinia rich crimson; pseudo-bulbs longer and more compressed than the type, deep green, the long, solitary, plaited leaf being of the same colour. The plant, which has now flowered for the first time, is said to have been imported by Messrs. Lewis & Co., Southgate. (I enclose a photograph, also the work of an amateur, which shows the bold massiveness of the plant.) Other things of merit were *Oncidium Kramerianum* flowering the second time from the same spikes, the lip of this form being beautifully crisp and undulate; *Odontoglossum Pescatorei* with a branched raceme; *Dendrobium Jamesianum*, *Maxillarias*, *Masdevallias*, *Cypripediums* and *Cymbidiums* in variety.—W. R. W.

[The photograph, though indistinct, represents a plant of exceptional vigour.]

CURIOUS FORMATION OF CATTLEYA MENDELI.

I SEND a flower of *Cattleya Mendeli* of peculiar growth, which I thought might be of interest to Orchid growers. The plant is in the collection of S. Symington, Esq., The Brooklands, Market Harborough. Last year it bore the same kind of flowers. It is in excellent health. Unfortunately the flower was past its best when Mr. Dunkley, the gardener, gave it to me.—J. G.

[The flower is an abortive one, the tube being tightly folded and devoid of lip. The occurrence has been noted before.]

NOTES ON BROCCOLI.

THE plot of land on which we grow our Broccoli, Brussels Sprouts, Savoys, and Kale, year after year is quite in the open. To this and the early growth of the plants I attribute our success more than anything else. The plants are sturdy in character, owing to the exposed situation. We are now cutting good heads of Leamington and Late Queen. The former I consider to be the best Broccoli in existence for standing the winter. Our earliest supplies following the autumn Cauliflowers were from Michaelmas White, Sutton's Mammoth coming next, both useful additions to Mr. Chinnery's list on page 371, especially the last named, which gives good heads during December and January. No other sort will do this in our soil. With Broccoli like other things too many sorts are a nuisance. Ascertain which is the best for any soil and site, and stick to it. That is the common sense of the question.

We make but one sowing, and that about the third week in March. Instead of pricking out the plants on a border, to be afterwards planted in their final quarters, we plant direct from the seed bed to the ground prepared for them as soon as they are large enough to plant with a dibber, choosing, if possible, showery weather for the work. In this way the plants make an early start, and by the autumn the stems are quite hard and matured as it were, and in a much better condition to withstand severe weather than when the growth is late and sappy, which results from deferring the sowing until the end of May, and again losing time by transplanting to temporary quarters on a north border. This, in my opinion, is not by any means the best site on which to prepare the plants to withstand very severe weather.

If those persons who do not obtain the success they desire would try the plan of sowing the seed earlier, and thus give the plants a longer season of growth, I fancy they would be better pleased with the results. Where the land is ready for the plants it seems waste of time to transplant them on to a border for a few weeks and then to spend more time on finally planting them.

We neither fork between the rows nor earth the plants up; all that is done after planting is to keep weeds down by the aid of the hoe, which is also one of the best means for checking the ravages

of slugs during the early growth of the plants. I tried the crowbar system of planting on undug land, but on our strong soil it was not a success. I never use liquid manure or any other stimulant after the plants are put out; such treatment only renders the plants soft and in a bad condition to withstand severe frost.—E. M.

THE GENUS NARCISSUS NEAR BAYONNE.

(Concluded from page 390.)

OF the remaining species of *Narcissus* which are included in the catalogues of the local Flora of Bayonne it is very difficult to adjust the claim which each makes to be indigenous. *N. odoratus* I have never seen there except in cultivation, though it is undoubtedly naturalised in more than one place a few miles to the north and the east of Bayonne. It is not largely cultivated for the flower markets, where it does not seem to be in much favour. The few bunches I saw were all composed of the large *Campernelle*, the *N. calathinus* of the "Botanical Magazine." *N. juncifolius* is a mountain plant, and does not come nearer to Bayonne than Mondarran, a low stony mountain fifteen miles to the south. Of the varieties of *Tazetta* many appear in the flower shops from the beginning of January. The earliest consist for the most part of the Italian kinds with yellow perianth and orange crown, and are imported from the Riviera with Tea Roses, Carnations, and other flowers too tender to stand the winter of Biarritz out of doors.

These Italian *Tazettas* hardly appear in cultivation in the nurseries of the south-west of France, but one variety comes in abundance with them, on which I must say a few words—namely, *N. papyraceus*. It is true that this *Tazetta*, called by French botanists *N. niveus*, occurs apparently wild in great abundance in several places near Bayonne. One hill side, an old pasture sloping to the south near the village of Villefranc, contains dense beds of this bulb at intervals over several acres. They may, perhaps, be indigenous, but the leaves are browned, the flowers dwarf and stunted, and the general appearance of all I saw growing in the fields was that of plants wishing for a warmer winter, as this is especially a winter flowering species. In cultivation they seem to fare better, and I saw them in gardens looking less unhappy than they looked in uncultivated ground. There is a degenerate sort of *Tazetta* with a narrow yellow crown and a thin white perianth, which I suspect is an indigenous form, and is found thinly scattered about the district. Another, which I could not trace to any place where it could pretend to be wild, is grown in large quantities in the peasants' vegetable grounds, and also in all the nursery gardens. It is a strong many-flowered variety, with a good and broad yellow crown, and a round well imbricated white perianth. I made inquiries everywhere about it. Some said it was collected in Spain, others told me that it occurred sparingly about the country. The graveyard round the church of Arcangues, famous for the obstinate fighting between the English and French for its possession during the winter of 1813 (it is about five miles from Biarritz), is full of this *Narcissus*, but it has evidently been planted there, and it seems to be a favourite variety with the natives. Plate 29 in Mr. Burbidge's "History of the *Narcissus*" is an excellent figure of it.

Another form very common in cultivated ground, but not even reported as wild, has a white perianth and cream coloured crown. It is abundant in the markets, but I think only from nursery grounds. I believe it is known as the *Scully White* in England, and is the *N. ochroleucus* of some catalogues. The next species to be spoken of is that called *N. intermedius*, and is of special interest as connected with local botany, because it seems to have been known and described as native near Bayonne by Loiseleur, Godron, and other French botanists before it was recognised as a wild form elsewhere, but it was found by Mr. Mogeridge wild in Liguria and described and figured by him in his "Plants of the Riviera." It may have been brought thence by ecclesiastics to the south-west of France in the same way as we know other *Daffodils* to have been naturalised away from their home. It is a very hardy kind, but does not find great favour in English gardens, though it has long been known there. Its chief merit in the estimation of the French florists is its very early flowering, in which it rivals *N. papyraceus*, and it is brought in large bunches to the markets early in January, and for nearly two months after. I observed it more frequently in the vegetable grounds of the peasants near Bayonne and Biarritz than any other species, growing in enormous bunches, a yard in breadth of dense leaves and flowering freely. I did not find it anywhere else wild, but it has always been recorded as wild at several places near Bayonne, Peyrehorade and Dax, and it is impossible to say to-day whether it first grew in the neighbourhood spontaneously or was brought there.

The leaves of this species are thick and of that dark glossy green which indicates affinity with the rush-leaved class rather than with the *Tazettas*.

N. Jonquilla, the small sweet *Jonquil*, is hardly claimed as a wild species of these parts of France, though it is reported as having occurred in one or two spots adjacent to cultivation; but there is a part of the country near Cape Breton, about twelve miles to the north of Bayonne, where the outskirts of a vineyard and several other spots near it are full of the double variety of it. The leaves and flowers are of large size, and the bulbs larger than any I have seen of the kind in the English bulb shops. The demand for the bulbs does not seem equal to the supply, but they are protected by the owner. There is no record of their introduction, but they can hardly be native. *N. biflorus* seems to be wild in the same way, and perhaps for the same reason, as the large yellow double *Daffodil*—namely, that it has such a constitution and so readily adapts itself to the conditions it finds as to become easily established by mere accident. French botanists seem to think that there are two forms of *biflorus*, the one a species and the other a hybrid between *N. Tazetta* and *N. poeticus*. The true species, they say, is found in the south-west of France. It is the same as is found established as wild in many parts of England and Wales. It occurs in many spots in the district of which we are speaking, generally in meadows near rivers, but by no means particular as to its surroundings, and generally growing in densely crowded clumps.

N. poeticus, the last species which we have to enumerate, is said to be wild in one grove two miles to the north of Bayonne. It also is found plentifully on the border of a vineyard near Peyrehorade, the variety in both places being a tall form of *N. p. recurvus*, and all uniform in character. Further eastward in the High Pyrenees, where the species is found in great abundance, the variety is small of flower and more slender. The natural range of *N. poeticus* is from the mountains of central Spain eastward through Switzerland and northern Italy into Greece, where it takes a less ornamental shape, with narrow stellate perianth and a narrow crown. From its very limited range in the lowlands about Bayonne it seems more probable that it was introduced there than that it is truly native.

This is all I have been able to find out about the *Narcissi* which grow on the lowlands and low mountains of the south-west corner of France, and it will be observed that there are only two kinds, the citron-coloured variety of the *Hoop Petticoat*, and the very variable but characteristic straw-coloured trumpet *Daffodil*, of which I have spoken without any doubt as to their indigenous character. Some of the others may be really native, but we know how greatly the distribution and prevalence of these flowers have been modified by the hand of man; so that, considering the want of continuity, or in other cases the small extent of the area over which they are found, and their absence from the wilder parts of the country at a distance from cultivation, it is better not to assent unreservedly to their right to a place in the local native Flora.—C. WOLLEY DOD, *Edge Hall, Malpas*.

TOP AND BOTTOM CROPPING.

WHILST in planting fruit orchards it is perfectly safe and sound practice to put bush fruits even fairly thick beneath and around standard fruit trees, it is none the less important that just as the tops of the latter spread and roots demand more space and food, so should the bushes on the ground be materially thinned. Double cropping is all very well up to a certain point, because at the first it is not in a strict sense double cropping, as the ground is but carrying what it is fully able to do. The harm begins when the soil is asked to carry two diverse crops whilst having capacity to produce only one.

When in a Middlesex orchard the other day, where there has been for many years one of the finest undercrops of Gooseberries and Currants to be found in the county, I observed that many of the top trees—Apples, Pears, and Plums—were giving out in an alarming degree, the points of the branches or shoots being dead wholesale. I pointed out to the owner that he was killing his trees because of the density of the undergrowth, and he admitted it, "but then," said he, "whilst as a tenant I may destroy every bush in the orchard (several thousands) if I like, I may not destroy one top tree; and yet, taking one year with another, the bushes are more profitable than are the top trees." That was of course a matter for consideration and settlement between landlord and tenant, but it was morally certain that because the top trees were deprived of that root food on the surface of the soil they so much needed by the dense bush growth, and would in a few years be valueless to both tenant and landlord, both must

ultimately suffer, whilst immediate destruction of the bushes would rob the tenant of his chief means of profit. The soil is an almost clayey loam, and the subsoil of a very clayey and cold nature; hence the roots being driven into it for sustenance, failed to find what they needed, with the result that the top growths were dying as fast as made.

It was very interesting as well as instructive to compare this overcropped orchard with one close by, which came into the same grower's hands some few years since. This orchard had long been grossly neglected, and became foul with weeds and couch grass, the trees also being much checked and stunted. As soon as possible the whole of the weedy undergrowth was trenched in, the old bushes about the trees being also destroyed. Since that time the ground has been cultivated, manured, and cleared, and cropped with vegetables or flowers. Here in every case the trees are the embodiment of health and blooming profusely. They have wonderfully improved during the past few years, and now are in capital condition. Only a similar course of treatment will save the trees in the other orchard unless they are too far gone, but a course of top cultivation and manuring can often work wonders.

Annual or temporary crops which admit of frequent moving, cleaning, and manuring of the soil may be grown about tall trees with profit, but permanent crops will not thrive equally over a long series of years. That fact should be clearly understood when calculations are made by tenants or intending fruit planters as to what may be their respective profits. No doubt on the average a breadth of Gooseberries and Currants will prove eventually to be more profitable than a breadth of standard trees. The two may very well run in harmony for ten or twelve years, but not much longer.—A. D.

BRITISH PLANTS.

I AM led by reading now and again in the *Journal* a note on one or other of our native plants to offer a few remarks on the subject, and if you consider them of sufficient interest they will, I presume, find a place in your pages. Speaking generally, gardeners do not, I think, care for British plants, nor is it to be wondered at that in these days of high pressure resulting from exhibiting, marketing, and providing for the wants of large households they should receive so little attention, few of us having the time to spare from our scanty leisure to make ourselves acquainted with even the more showy species; but I fear the chief reason why they are so little cared for is that they grow wild. One sometimes hear the remark, "Ah! that grows in the hedges." There are, however, those to whom wild plants afford real enjoyment.

Though a knowledge of British plants is not indispensable to a gardener, I venture to affirm that it will some day prove useful. It should be remembered that our flora represents a good number of natural orders, therefore the study will be found serviceable in the wider field of exotics. A very accomplished botanist once told me that no better material could be found for a beginner than our own wild plants. That is many years since, and I cannot even now lay claim to being a botanist, because like most of my brethren in the craft I have always had plenty of work to do. Nevertheless, I have been able to get a good deal of pleasure out of wild plants, and my object in writing is to tell any who may be interested in the subject how they may do the same without any great tax on their time. Spare moments, country walks either for business or pleasure, near home or abroad, is about all the time I have devoted to it; in fact, I use it as a kind of recreation. It is astonishing how much more interesting a walk becomes when one is engaged in looking over the flora of a locality in the hope of meeting with some unknown plant, to say nothing of the pleasure of seeing those that are familiar. I have for years past contrived to make my country walks enjoyable in this way, and especially so when I have been fortunate enough to find a bit of new ground. I confess to have been at such times just a little excited.

I have never had time to devote to the preservation of a collection of dried specimens of British plants (Ferns being an exception), but the following has been my practice. I procured a copy of "Bentham's Handbook of the British Flora." I like it better than any other book I have yet seen. The descriptions of the plants are very accurate and detailed; moreover, it contains much botanical information and excellent analytical keys. There are illustrated books on the subject, but since identifying plants by their portraits affords no mental exercise I prefer to trace out my specimens by the keys. When I commenced I went through my book and marked off the few plants I then knew (these, for the most part, were common species), at the same time writing on the margin opposite to each some remark, as "Garden weed," the name of the wood, field, or lane where I remembered to have seen it growing; for trees, the places where I had observed fine specimens,

and other notes of interest; and so on with each species with which I have since made myself acquainted. I think if this plan is followed there will be no difficulty in calling to mind any plant that has been once known, though years may have elapsed—at least, I have not found any; but to those who have time to study the subject more systematically, and to preserve specimens, I would say by all means do so.

It is some time since the above was written. After reading it over I laid it aside, thinking it would be of no interest to your readers; but as Mr. W. W. Pettigrew has opened the subject at page 352 with his very interesting and instructive paper, which I have greatly enjoyed, it occurred to me that while his contribution was calculated to inspire a love for British plants amongst your more scientific young readers, this will, perhaps, help a little those of the class to which I belong—viz., the pseudo-botanist.—T. S.

[A very laudable desire, and the method indicated is worthy of the attention of young gardeners.]

GOOD THINGS AT THE TEMPLE.

"PLENTY of stuff here," colloquially remarked a gardener to me at the recent Temple Show, and undoubtedly the wearer of the "blue apron" spoke correctly. There were plenty of exhibits outside Orchids which were interesting in their way but —; well, we are not all Orchidists. There were, as the detailed report in "our *Journal*" last week showed, magnificent groups of flowering and foliage, greenhouse and stove plants, Roses in abundance, an unlimited supply of cut flowers and hardy plants, and Strawberries almost beyond description, if size counts for anything.

Like many others I took a leisurely (?) stroll around the Show in the afternoon, when the spacious marquees were packed with people as well as flowers. Some of the latter I saw, others I did not. Many gardeners, I thought, however, were less fortunate than myself, they did not see the Exhibition at all. A suggestion was therefore made to me, as an occasional scribbler, that a few remarks on some of the good things that were to be seen there would be of interest to those readers who were not privileged to see for themselves. I say "some of the good things" advisedly, because I was so pressed for time (and with people) that only a cursory glance at the numerous exhibits could be made. The general verdict was that all the exhibits were good. That may be so, still some were better than others, as is only natural—but I am digressing.

Conspicuous amongst the many beautiful things there the Pelargoniums struck me, as doubtless they did other visitors, as being exceedingly showy. The well-trained plants exhibited by Mr. C. Turner of Slough stood out prominently against the smaller specimens staged by Messrs. J. & J. Hayes, H. J. Jones, and Hugh Low & Co. In each case the plants were remarkably well flowered, and among them some really good varieties were noticeable. One named Princess May, shown by Messrs. Hayes, attracted some attention, and was adjudged an award of merit. This is apparently a very free blooming kind, producing fine trusses of flowers of a charming salmon pink hue, with a dark purplish blotch. I noticed plants of the same variety were included in Mr. H. J. Jones' group, but these were not honoured in a similar manner.

"What's in a name?" asked Shakespeare once upon a time, to which the florists of the present day might say:—

"Who hath not owned, with rapture-smitten frame,
The power of grace, the magic of a name?"

For do we not find the appellation of "Princess May" attached to not only Pelargoniums, as already said, but to Roses, Begonias, and numerous other flowers? That the amiable and popular Princess deserves all the honours that florists can endow her with no one can doubt, but there seems to be a danger of taking this method of naming varieties of flowers a little too far. A line should be drawn somewhere. The average gardener does not bother himself about the names of the numerous varieties, and by this means backs out of the difficulty. The enthusiastic amateur, however, makes an attempt to grasp the details, and gets deeper in the mire. But here again I am digressing. I intended opening this paragraph by referring to the charming Princess May Rose, shown by Messrs. W. Paul & Son. This is a beautiful variety, worthy of the name it bears, and, singular to say, was the only Rose certificated in the whole Show. In form the blooms partake somewhat after the well-known La France, and are of a soft rose pink shade. The vigorous growing Moss Rose Zenobia, recently certificated and described in the *Journal*, was also noticeable in Messrs. Paul's collection. This, I should say, would be a splendid variety for garden decoration.

Turning to the various groups of Tuberous Begonias one finds

them all aglow with colour. But look at some of the varieties! Ah! the inexperienced amateur gets perplexed. Here again the "magic of a name" is brought into use. In Messrs. Laing & Sons' superb group I noticed Duchess of Westminster sailing under bright rosy crimson colours and with a white centre, whilst in Messrs. Cannell & Sons' fine collection "Her Grace" (Duchess of Westminster) was distinguished by bright orange and rose shaded blooms. Both varieties are singles, were adjudged awards of merit, and are welcome additions to the already extensive family. A beautiful rich scarlet crimson double variety named Leopold de Rothschild was also conspicuous in Messrs. Cannell's group, whilst in Messrs. Laing's collection Picotee (the *Times* charges this variety with "masquerading as a Picotee") and Triumph were noticeable for their beauty. Both are doubles, the former having very pale pink or flesh coloured blooms, edged like a Picotee with rose, and the latter is of a bright rosy salmon colour. Mr. T. S. Ware's Begonias were also good, but so far as I am aware none were certificated.

Carnations, although few in number, deserve a special paragraph. The group of the yellow ground Almira, apparently a useful decorative variety, shown by Mr. Jennings, Ascott, was much admired, and perhaps by some thought more beautiful than the new Carnation Mrs. B. Cannell, staged by Messrs. Cannell & Sons, Swanley. Be that as it may, the latter is a charming variety, and well deserved the award of merit adjudged. The blooms shown were of large size, good shape, a bright pink colour, and deliciously Clove-scented. Judging from the appearance of the flowers staged it would seem to be a useful variety for cutting, inasmuch as the pods were not split. Messrs. Cannell also exhibited blooms of another new Carnation named Engadine, which was of a salmon pink shade and fragrant, but the blooms were rather loose and the pods much split. Blooms of a grand variety named Mrs. Geo. Devas, shown by Martin R. Smith, Esq., were considered the acme of perfection by some connoisseurs, and in consequence received an award of merit. This is a yellow ground seedling with rosy crimson flakes, and appears to be an excellent border variety.

The hybrid Streptocarpus exhibited by Messrs. J. Veitch and Sons, Chelsea, made a grand display, as also did the Gloxinias shown by the same firm and Messrs. J. Peed and others. The Streptocarpus hybrids are real "good things," and should be extensively grown for decorative purposes. Three varieties of Gloxinias in Messrs. Veitch's contribution were certificated—namely, Claribel, a large rose speckled flower; Clio, white ground with rosy red spots; and Cicely, a purplish red edged with white.

Reverting to hardy or semi-hardy flowers, the Tree Pæonies shown by Messrs. T. S. Ware and Kelway & Sons were exceedingly bright on the first day, but soon lost their beauty in a close atmosphere. Mr. Ware had a grand single white variety named Snowflake in his group. This was adjudged an award of merit. A single chocolate coloured variety shown by Messrs. Kelway & Son was similarly honoured. Admirers of hardy Azaleas, and they are many, will be glad to know that a new variety named Mrs. Anthony Waterer, conspicuous in the superb collection shown by the firm of that name, was deemed worthy of a first-class certificate. The flowers of this kind are rather small, but white with just a tinge of lemon yellow on the upper petal. There are many more flowering plants that should be mentioned, but time presses, and I must conclude this section by remarking that Barnard's Perpetual Lobelia was undoubtedly one of the "good things" of the Show. This is a dark variety with deep purplish blue flowers and a white centre, and was adjudged an award of merit.

Fern enthusiasts will be on the look out for their favourites, and therefore mention must be made of the charming little *Pteris serrulata gracilis*, shown by Mr. H. B. May. This is a slender growing, grass-like variety, just the kind of Fern that is required for choice floral decoration. Mr. May also had a new *Selaginella elegans*, for which, like the Fern, a first-class certificate was awarded. Under the designation of *Pteris tremula densa*, Messrs. R. Smith & Co. showed a dense growing but beautiful Fern, bearing a strong resemblance to well-curved Parsley. Messrs. W. & J. Birkenhead, Sale, were also to the front with Ferns, showing some new and choice forms, amongst which *Scolopendrium digitatum majus* and *S. crispum fimbriatum Cropperi* were the most beautiful. Then last but not least comes the collection of new foliage plants, sent from L'Horticulture Internationale, Brussels. These included two remarkably strong growing *Tradescantias*, named *reginæ* and *superba*, both of which should prove welcome additions to our stoves. *Dichorisandra musaica* var. *gigantea*, and *Stenandrium Lindenii* were also conspicuous for their fine foliage in this group, and deserving of a place among the other "good things."—NOMAD.



ROSE SHOW FIXTURES IN 1892.

- June 21 (Tuesday).—Westminster (N.R.S.).
 „ 23 (Thursday).—Ryde.
 „ 28 (Tuesday).—Maidstone.
 „ 29 (Wednesday).—Brighton*, Farningham, Ipswich, King's Lynn*, and Richmond (Surrey).
 „ 30 (Thursday).—Canterbury, Eltham, and Winchester.
 July 2 (Saturday).—Crystal Palace (N.R.S.)
 „ 5 (Tuesday).—Bagshot, Diss, Earl's Court*, Gloucester, and Sutton.
 „ 6 (Wednesday).—Brockham, Croydon and Hitchin.
 „ 7 (Thursday).—Bath, Lee*, Norwich, Windsor, and Woodbridge.
 „ 9 (Saturday).—Reigate.
 „ 12 (Tuesday).—Hereford and Wolverhampton.†
 „ 14 (Thursday).—Chester (N.R.S.), and Helensburgh.
 „ 19 (Tuesday).—Moseley* (Birmingham).
 „ 21 (Thursday).—Trentham and Worksop.
 „ 23 (Saturday).—Bedale and New Brighton.
 „ 28 (Thursday).—Halifax and Southwell.
 „ 30 (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

JUDGING ROSES.

MR. GEO. PAUL'S opinion, as quoted by Mr. Biron, would have been of more value if he could have stated that he had read the previous correspondence, which I suspect he has not done, and so we are, as stated by Mr. Biron, brought back to the point at which we started. I must say again that I believe we are all agreed, and that our agreement would be plain if it were not for the use of the terms "good flower" and "bad flower." Mr. G. Paul does not say that he would give no points to a faded Rose, but that it is a "bad flower," and I quite think he would admit degrees of badness, and that a Rose might be bad enough by being faded to lose one or two points and yet not bad enough in form and size to lose them all. But I gather, though I may be wrong, from a sentence in Mr. Biron's last letter that he would admit degrees of excellence or deficiency in other points, but not in colour, and here I should not agree with him. I am very sorry that I have failed to make my meaning clear, and instead of accepting an apology from Mr. Biron I would offer one to him and the readers of the Journal for not having succeeded in showing what I meant. But in one thing at least we are agreed: If it can be shown that different "leads" have been offered to judges by Cheshunt and Sproughton (wherever that may be) by all means let the former, an ancestral home of the Rose, show the way, and the other place be unnoticed.—W. R. RAILLEM.

MESSRS. ALEXANDER DICKSON & SONS.

ROSE growers in general will hear with much pleasure that the well-known firm of nurserymen and rosarians at the Royal Nurseries, Newtownards, Co. Down, Ireland, Messrs. Alexander Dickson & Sons, have been appointed by royal warrant nurserymen, seedsmen, and florists to Her Majesty the Queen. Those who are personally acquainted with the Messrs. Dicksons will be gratified with the compliment that has been paid to them, and all true lovers of the Queen of Flowers will still further appreciate the honour that has fallen upon the raisers of such grand Roses as Marchioness of Dufferin, Earl of Dufferin, the charming Lady Helen Steward, and the finest white Rose we have, Margaret Dickson. The Marchioness and Margaret Dickson both have most deservedly won the greatest honours Roses can win, the gold medals of the National Rose Society awarded for seedlings or sports; and fine as the Roses named are, we believe that others of equal beauty and distinct form are promised from this home of Roses in the northern part of the Emerald Isle.

PARIS GREEN FOR ROSES.

IT seems a pity that the application of Paris green for Roses should be generally recommended. It should be remembered that it is a poison to vegetable as well as to animal life, and to the roots as well as to the leaves. In the destruction of vermin of any sort it is well, as a rule, not to use poison till all other means fail. For large pillar, wall, or weeping Roses, the use of it may perhaps be desirable; but I think it should be deprecated in ordinary cases.—W. R. RAILLEM.

CHANGE OF DATE.

AN intimation has been received that owing to the lateness of the season the Show of the Windsor and District Rose Society has been postponed to Thursday, July 7th.

SOWING WALLFLOWERS.

THE time has now arrived when it is necessary to make a sowing of these beautiful and popular flowers to provide a display for next season. Before doing so, however, it is wise to make a note of the varieties

which answer our purpose the best and grow them exclusively, for there is nothing like making a rigid selection in cases where the general effect has to be considered.

I consider Belvoir Castle to be by far the best Wallflower grown for spring bedding; it is so hardy and floriferous, and moreover, supplies the bright yellow colour so largely in demand, for contrasting with other spring flowers in which blue and purple colours predominate. This variety we shall therefore grow extensively. Among dark varieties Covent Garden Blood Red is our favourite; the habit is good and the colour quite distinct, but it flowers a week later than the first named kind. It is quite possible, however, that this may be remedied by sowing the later variety a little earlier than Belvoir Castle. Harbinger is a good early variety, but the colour is not so distinct as Covent Garden Blood Red, for this reason we prefer the latter.

To obtain sturdy plants clothed with foliage to the base they must be well grown, and at no time be allowed to crowd each other. Sow on a warm border at once. Mark out beds 3 feet wide; sow the seeds thinly broadcast, and cover with fine soil. When the necessary quantity is sown give a good watering through a rose, and place a net over the beds to keep the seedlings, when they appear, safe from the attacks of birds. When the plants are large enough to handle prick out in nursery beds 3 inches apart, and attend closely to watering till the plants are established. As soon as they have grown sufficiently to almost touch each other, lift with a trowel and plant 9 inches apart on land which was well manured for the previous crop, taking care to press the soil firmly about the roots. It is important that the soil should be moist both at this and the final transplanting, so that good balls of earth may be secured. When treated as above described sturdy plants are produced, which are in marked contrast to the "leggy" specimens one sometimes meet with.—H. DUNKIN.



EVENTS OF THE WEEK.—An Exhibition of Orchids will be held by the Manchester Royal Botanic Society on the 3rd inst., and a Conference on the 4th. Committee meetings of the Royal Horticultural Society will be held at the Drill Hall, James Street, Westminster, on the 7th, when a paper by Mr. A. Young will be read. A meeting of the Horticultural Club takes place on the same day, at which Mr. F. W. Burbidge will lecture. The National Tulip Society's Show is fixed for June 8th at the Manchester Botanical Gardens, and on the 9th the Midland Pansy Society's Exhibition will be held at Birmingham. Important sales of Orchids will be conducted at Protheroe & Morris' rooms on the 3rd and 8th insts., and a sale will take place at 72, Renfield Street, Glasgow, on June 8th. For particulars see advertisements.

— **THE WEATHER IN LONDON.**—Welcome showers have fallen during the past few days, and vegetation has been greatly stimulated. The barometer was depressed on the 30th and 31st ult., and heavy showers fell in the evening of Tuesday. On Wednesday morning the barometer was rising and the weather bright, but threatening showers.

— **GARDENING CHARITIES.**—By request of Mr. H. J. Clayton (gardener), J. Fielden, Esq., has kindly given permission for a fête to be held in Grimston Park on behalf of the Gardeners' Benevolent Institution and Gardeners' Orphan Fund.

— **KEW NOTES.**—The rumour that the publication of the "Kew Bulletin" was to be discontinued proves to be unfounded, Mr. Plunket having stated in the House of Commons that the Government had no such intention. The new edition of the official guide to the Arboretum and Botanical Gardens is expected to be ready during the summer. The Director of Kew Gardens, Mr. W. T. Thiselton Dyer, has been created a Companion of the most Eminent Order of the Indian Empire.

— **ROYAL BOTANIC SOCIETY'S FÊTES.**—Schedules have been issued of the two Floral Fêtes to be held in the gardens of the Royal Botanic Society this summer. The first, a Children's Fête, is fixed for Wednesday, June 22nd, and prizes are offered for flower-dressed carriages, chaises, chairs, tricycles, wreaths, and bouquets, decorated and arranged by children. The second, the Evening Fête, is to be held on Wednesday, July 6th.

— **HORTICULTURAL CLUB.**—A special meeting on the occasion of the great Temple Show of the R.H.S. was held on Wednesday, May 25th, Sir John T. D. Llewelyn, Bart., the Chairman of the Club, presided.

There was a good attendance of the members, including the Rev. E. Handley, Rev. F. H. Gall, Messrs. Moss, Sherwood, H. J. Veitch, Peter Veitch, Manning, Soper, Leonard, Gordon, C. Pearson, and others. The Secretary, in proposing the Chairman's health, said he had been good enough to promise to give some notes on his recent visit to Egypt. This he did, dealing in a most interesting manner with its agricultural and horticultural aspects. We hope to give a *résumé* of the address, which was cordially received, and for which a vote of thanks was moved by Mr. Harry Veitch. The next meeting will be held on June 7th, when a paper by Mr. F. W. Burbidge of the College Botanic Garden, Dublin, on "Nature and Cultivation" will be read.

— **ROYAL HORTICULTURAL SOCIETY.**—The next meeting of the Society will be held in the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, June 7th, when the Fruit, Floral, and Orchid Committees will again assemble at twelve o'clock. In the afternoon a paper on "The Summer Pruning and Training of Fruit Trees" will be contributed by Mr. A. Young, of Abberley Hall Gardens, Stourport. Amateurs who grow hardy Rhododendrons and Orchids will on this occasion have an opportunity of competing for the prizes offered in the Society's schedule, and a silver-gilt Flora medal is also offered to the raiser (amateur or professional) of the best new seedling Orchid. Intending exhibitors are requested to send particulars of their exhibits to the Superintendent, R.H.S. Gardens, Chiswick, without delay.

— **GARDENERS' ORPHAN FUND.**—We learn with pleasure of the receipt by the Secretary of the following donations to the Gardeners' Orphan Fund—viz.: £10 from the Ealing Gardeners' Mutual Improvement Society, the proceeds of a lecture given by the Rev. Thain Davidson to that body; and £20, the proceeds of a concert held at Altrincham under the auspices of the Manchester Local Committee of the Gardeners' Orphan Fund. Such efforts are most praiseworthy.

— **EFFECTS OF FROST IN NORFOLK.**—Like "J. A. W." I live on the borderland of Norfolk and Suffolk, just in Norfolk, in the Waveney Valley, but I cannot say that our fruit crop is good. We have no Pears on standards, few Apples, no Plums, very few Gooseberries, but a fair crop of Black and Red Currants. So much for the spring frosts; and all I can say for the winter frost is that more than half my standard Tea Rose trees are dead, and the dwarfs breaking very weakly.—F. PAGE ROBERTS.

— **WASPS.**—In the spring of 1891 there was an unusual abundance of queen wasps, but the predictions of those who expected a large number of these pests in the autumn were singularly falsified, as I hardly remember a season more free from them. We may probably thank the Whitsuntide frost, following some warm weather, for this deliverance. Not one of my Peaches or Apricots in the open was attacked. We had a few hornets, but practically no wasps. As a natural result we have hardly any queens this spring. I have only seen two.—W. R. RAILLEM.

— **ASPIDISTRA FLOWERING FROM THE LEAVES.**—A friend of mine has been repotting an *Aspidistra lurida variegata*, and was surprised to find flowers growing directly from the leaf stem, the peduncle of the flowers being about 1½ inch in length, and not from the rhizome as it does in my greenhouse. I ought to mention that the roots of the plant were found to be confined to the upper part of the pot, and as it had been grown in a dwelling house it may have been insufficiently watered, and the abnormal result of producing flowers on the leaf stem may have arisen from being grown under unhealthy conditions of some kind. I shall be glad if your readers can say whether this peculiar growth is uncommon or otherwise, and the cause of it. My friend being a botanist is naturally much interested in the subject.—J. F. C.

— **THE BAND OR THE SHOW?**—The opening day of the first great flower show at the International Horticultural Exhibition also marked the appearance of the band of the Garde Republicaine from Paris, one of the most famous of the great European military musical organisations. The gardens were densely crowded during the evening, and now the question is raised, Was the Band or the Show the great attraction? One French visitor appeared to be highly indignant at a suggestion that the flower show, and not the musicians, was the real source of the crowded attendance. No doubt both features had a share in the result, and the management are to be congratulated on their enterprise. They evidently intend to spare no means to make the Exhibition at Earl's Court a great success.

— MR. JOHN T. EBBUTT informs us he has left Winslade Gardens. A gardener of his experience ought not to be very long out of a situation.

— TROPÆOLUM MRS. CLIBRAN.—This useful dwarf Tropæolum is rapidly growing in popularity, and it is no surprise to hear that the demand is great. It is very dwarf and a most profuse bloomer, bearing rich orange-yellow flowers. Many uses to which it could be put will suggest themselves.

— THE MIDLAND COUNTIES PANSY SOCIETY.—We are asked to call attention to the forthcoming Exhibition of the Society at the Central Hall, Birmingham, on Thursday, June 9th, and that entries be sent in as soon as possible. Schedules on application to the Hon. Sec., W. Dean, Dolphin Road, Sparkhill, Birmingham.

— MR. J. F. BARTER, the well-known Mushroom grower and spawn maker, desires us to state that he has removed from Lancefield Street, Harrow Road, to Napier Road, Sudbury, Middlesex. Mr. Barter's experience, as recorded in "Mushrooms for the Million," gave a great impetus to the cultivation of the esteemed esculent, and larger premises for conducting his business became imperative. He grows upwards of ten tons of Mushrooms annually, and has now provision for making and drying spawn bricks all the year round.

— WEATHER IN THE NORTH.—With the sufficient, not excessive, rain that has fallen since the 12th May, and the more genial weather, the aspect of the country has greatly changed. Trees and hedges are green, pastures progressing rapidly, the Oak and Ash are breaking into leaf. Farmers have got Turnips sown, in many cases these are well braised. Cold easterly and north-easterly winds have prevailed a good deal, and high westerly winds at the end of last week. Perhaps the finest day we have yet had this spring was the 27th ult. —B. D., *S. Perthshire*.

— NOXIOUS WEEDS.—A correspondent, "G. McD.," desires to know if there is an Act under which those are compelled to pay compensation who allow Tussilago, Dandelions, Thistles, and other noxious weeds to grow and seed indiscriminately, so that by every breeze that blows their neighbours' land is polluted by them. He has a faint recollection of reading, somewhere about twenty years ago, of some farmer receiving damages from a railway company because they allowed Thistles to seed on their banks, which polluted the farmer's ground. Our correspondent will be obliged for information on the subject, and he also wishes to know if any such Act applies to Scotland.

— ERFURT CAULIFLOWERS AND WATERCRESS.—The Cauliflowers for which Erfurt is famous are grown, says a writer in the "American Cultivator," on a low-lying strip of land some miles in length, and intersected by warm springs which never freeze, even in this vigorous climate. The ground is cut into beds 100 yards long by 20 wide, and the water flows around each in ditches about 9 feet wide. The beds themselves are raised 2 or 3 feet above the level of the ditches, and the plants are watered with a bowl about the size of an ordinary hand-cup fitted to the end of a pole 10 feet long, with which the water is taken from the ditches by hand and poured on or around the plants. This involves considerable labour during the hot summer months, but the plants flourish under such treatment, and bring a very remunerative crop. Watercress is grown in the ditches successfully, because the water is kept at an even temperature all the year round. Erfurt is one of the few places in Germany where Watercress can be grown in quantity.

— INFLUENCING FRAGRANCE IN FLOWERS.—Experiments by the late Herr Regel, says a recent article in the "Popular Science Monthly," with reference to the influence of external factors on the odours of plants, show that the most important is the indirect influence of light on the formation of etheric oils and their evaporation. Heat and light intensify the fragrance of strongly fragrant flowers, which in darkness is lessened without quite disappearing. When the whole plant was darkened those buds only which before were fairly well developed yielded fragrant flowers; the others were scentless. If, however, only the flowers were darkened, all were fragrant. Other plants open their flowers and are fragrant only by night. When these plants were kept continuously in the dark they lost their scent as they lost their starch. When brought into the light again both starch and fragrance returned. Besides light, respiration has a decided influence on the fragrance. In general, the opening of flowers coincides with their fragrance, but there is no necessary connection between these phenomena.

— POISONED BY NIGHTSHADE.—Mrs. Rutter, a lady who resided at Cambridge, has died there from poison. She used in cooking a root of what she believed to be Horseradish, but which was afterwards found to be Nightshade, and having eaten some of it at dinner, was seized with an illness which proved fatal. Her children, who shared the food, are seriously ill.

— BRITISH PLANTS.—It was with much interest that I read the paper by Mr. Pettigrew entitled "Half an Hour Amongst British Plants." It is quite true that young gardeners do not study the subject so much as is desirable, and I would suggest they should set apart one or more nights a week to gaining knowledge on botany. Head gardeners might, and I think ought to give encouragement to that end, but I think very few of them do so.—A. K.

— BEDDING VIOLAS.—A correspondent ("L. J.") desires to know the names of the "best yellow, best white, and best blue Viola, also the best time to sow the seed for having good plants for bedding in April?" We think with so many bests in the case our best plan will be to ask some of our flower gardening friends to send the best information they can on the subject. We raise our plants from cuttings, and find True Blue, Countess of Hopetoun (white), and Ardwell Gem (primrose yellow) useful, though there may be better for the purpose.

— WORLD'S FAIR NOTES.—Owing to the recent increase of Great Britain's World's Fair appropriation to £60,000, British exhibitors will not be charged for space, as was at first determined. W. H. H. Llewellyn, Executive Commissioner for New Mexico, has been in Chicago securing space in the various buildings for exhibits from the Territories. "We expect to show people who visit the World's Fair," he said, "that New Mexico can raise something besides Cactus and Sagebrush. One exhibit will be 100 Water Melons, the minimum weight of each of which will be 100 lbs. We shall have specially fine displays in the Agricultural and Horticultural Department, also in the Mines Department."

— LILACS.—On page 395 of the Journal I notice that "E. M.," in his article on Lilacs, says that "Charles X. is a deep purple Lilac. This variety is decidedly the best of all." In my opinion there is no "best of all Lilacs." When different colours are mixed in a large bunch they make a grand bouquet, but are sadly neglected in many gardens. If gardeners generally had a better acquaintance with, and would use a little common sense in the management of hardy shrubs, many gardens would look very different to the ragged appearance they now have. I enclose two flowers of Lilacs, will you kindly say if I have them correctly named?—J. CARTER. [The names appear to be reversed, the dark variety under the name of Grandiflora being Charles X., and the lighter one might be termed Grandiflora.]

— FOXGLOVES AS PERENNIALS.—Complaint is often made of Foxgloves and some other herbaceous plants which are sometimes sold as perennials, that they die away after flowering and are really biennial plants. "Meehan's Monthly" calls attention to the fact that they can be made true perennials if they are prevented from going to seed. It is the production of seed which exhausts the vital powers of the plant. If the stalks of Foxgloves and other plants are only cut off as soon as the flowers fade and before the seeds are formed, there will be no difficulty in having them live for a number of years. Those who wish to increase perennial plants rapidly do not let them flower at all. Where seed is needed, one or more plants can be allowed to produce and ripen it.

— RAINDROPS.—The usual monthly meeting of the Royal Meteorological Society was held on Wednesday evening, the 18th ultimo, at the Institution of Civil Engineers, 25, Great George Street, S.W., Dr. C. Theodore Williams, M.A., President, in the chair. Mr. B. E. C. Chambers, Mr. R. Law, F.C.S., Dr. W. A. Sturge, and Dr. E. Symes Thompson were elected Fellows of the Society. Five honorary members were also elected—viz., Mons. A. D'Abbadie, Dr. W. H. von Bezold, Dr. R. Billwiller, Mons. N. Ekholm, and Prof. P. Tacchini. Amongst other papers, one on "Raindrops" was read by Mr. E. J. Lowe, F.R.S., F.R.Met.Soc. The author has made over 300 sketches of raindrops, and has gathered some interesting facts respecting their variation in size, form, and distribution. Sheets of slate in book form, which could be instantly closed, were employed. These were ruled in inch squares, and after exposure the drops were copied on sheets of paper ruled like the slates. Some drops produce a wet circular spot, whilst others, falling with greater force, have splashes around the drops. The same-sized drop varies considerably in the amount of water it contains. The size of the

drop ranges from an almost invisible point to that of at least 2 inches in diameter. Occasionally, large drops fall that must be more or less hollow, as they fail to wet the whole surface enclosed within the drop. Besides the ordinary raindrops, the author exhibited diagrams showing the drops produced by a mist floating along the ground, and also the manner in which snowflakes, on melting, wet the slates.

— THE WEATHER—SLUGS AND CROPS.—The long wished for rain has come at last, and crops have grown apace, weeds included, during the last two weeks. The ground is thoroughly saturated, drains are running, and field and garden crops are making rapid progress. Slugs are having a lively time of it after their long nap; I never saw them more abundant. I have always observed that a wet winter and spring are more destructive to all animal life which hibernates in the ground than a dry one however frosty. With a long continued sodden state of the soil they are destroyed from want of air, which cannot penetrate the sodden mass, whereas, when dry, the soil is permeated with it. The Turnip beetle is causing some trouble. Several sowings of Turnips have disappeared, and newly planted Cabbages and Brussels Sprouts are greatly damaged by its ravages. Now that we expect the frost to be past for a season, in looking round what do its ravages amount to? Gooseberries and Red Currants are a good crop where the sparrows have let them alone. Black Currants in some gardens are thin. Strawberries are coming into bloom, the appearance auguring well for a good crop. An extensive grower about a mile from here has, I hear, lost all his early bloom. On the same variety (Garibaldi) here on old plants there are a few black eyes to be seen, but on younger and more robust plants there are scarcely any. I find that Noble, among its other bad qualities, has a very tender bloom. Blooms just opening are showing black centres, which must have been killed early in the month. Our last frost occurred on the 21st, 29.3°; then on the 12th, 27.1°; on the 2nd, 5th, 6th, and 7th we had 27.2°, 30.3°, 27.2°, 27°, respectively. A plant of John Ruskin growing alongside of Noble has escaped injury, and so has President. —G. McDOUGALL, *Stirling*.

— CUTTING LILIUM HARRISI.—Mr. F. R. Pierson recently wrote to the "American Florist" that Bermuda Easter Lilies are often left too long after they are ready to be cut. The proper plan is to cut the flowers as soon as they are sufficiently open to allow the pollen to be removed, to put them in water and set them away in a dark cellar. The flowers will then never become transparent or papery, but have the desirable waxen appearance which gives them their highest value. Of course, this refers principally to the smaller-sized Lilies grown for cutting, on which there are from two to four flowers on a stem. It will be found that when the first Lilies begin to open on the stem, if they are cut and treated in this way, the remaining buds will open even better in the water than they will if they remain in the greenhouse, while the first flowers will keep in better condition than if they had remained in the heat and sunshine until the other flowers had opened. Potted plants should also be placed in a darkened greenhouse, a cool shed or a cellar when their flowers are opening. For transportation the flowers should be packed with a little cotton as tightly as possible, and they should be absolutely dry, because the least moisture will discolour them. Lilies properly cut can be kept for a fortnight without injury if they are in a place where there is no condensation of moisture. When they show any sign of flabbiness they should be removed from the jars and the stems freshly cut, and they will shortly be as good as ever. On arrival at their destination, after a long shipment, they should have their stems cut and be placed in water in a dark cellar for half a day before using, and they will be greatly improved.

— CONIFERÆ AT DROPMORE.—There seems to be always much pleasure found by gardeners in visiting that delightful Buckingham garden or estate of Dropmore, where, although Mr. Frost is no longer head, an admirable successor is found in Mr. Charles Herrin, who, as true gardeners invariably do, has learned to love the place and to enter into all its associations with exceeding interest. Very enjoyable indeed is a walk round the extensive grounds with Mr. Herrin for a guide. So extensive are the grounds that a stranger without a guide might easily be lost. A guide familiar with all the chief features of the estate leads to those chief features, of which perhaps there are none like the Conifers, although just now the immense breadths of Rhododendrons and Azaleas are very beautiful. The grand old Araucaria, so well watched and cared for, it is satisfactory to know, is still without a blemish, and is as noble an object as ever. To get right beneath this immense tree and look right up through its branches gives perhaps a better conception of its stability than is gathered from an external

look. The old Abies Douglasi has lost much of its grandeur, but a young one, said to be an early seedling from it, is fast becoming a very fine tree. Abies Albertiana, 50 feet high, in a conspicuous spot, is a very noble as well as elegant object. Several specimen Hemlock Spruce form beautiful objects. A fine Yew is very noble. Picea Nordmanniana some 60 to 70 feet high and retaining its leader; Pinus insignis, looking like a huge Scotch Fir, some 70 to 80 feet high; Abies Smithiana fully 50 feet high; Abies Menziesi, 60 feet; Cedrus atlantica, 50 feet; and Picea grandis, a lovely glossy green, 50 feet, are but a few of the splendid trees seen at Dropmore, many of them planted very wide, and only to be met with after a long and circuitous ramble through the woods. Certainly Dropmore has a soil wonderfully well suited for all kinds of Coniferæ; and, happily, with the exception of Douglassi, few have suffered from winds or snow storms.—A. D.

— LEAF MOULD AND ITS SUBSTITUTES.—The usual monthly meeting of the Sheffield, Hallamshire, and West Riding United Chrysanthemum Society was held at the Museum Hotel, Orchard Street, Sheffield, in May, when Mr. John Haigh read an interesting paper on the above subject. Mr. W. K. Woodcock of Leicester occupied the chair. Mr. Haigh in his paper pointed out the value of leaf mould when properly prepared as a root-producing medium, and indicated some of the chief chemical elements it contained. He showed how much superior naturally prepared leaf mould was to that which had been reduced to a black humus by fermentation in large heaps. Reference was made to the extensive use of leaf mould in Belgium by the Azalea growers there, who used it as a substitute for peat, which was difficult to procure. Their method of preparation was to place the leaves together in shallow ridges, similar to swathes of mown grass, letting them remain with a few turnings until decayed enough for use. Similar methods of preparation ought to be adopted here to produce good leaf mould, except when it could be procured in the best condition from natural sources—the woods. The substitutes for leaf mould referred to by Mr. Haigh were cocoa-nut fibre, spent hops, and peat moss litter, all of which should be well decayed before being mixed with soil. The latter also formed an excellent manure when thoroughly decayed for potting purposes. The Chairman, in inviting a discussion on the subject, referred to the fact that a too liberal use of leaf mould on land year after year tended to produce an excess of humus; also too freely used in the cultivation of hardwooded plants it had an injurious effect. He mentioned how freely Rhododendrons in borders and shrubberies made surface roots in the layers of naturally formed leaf soil. The best of all the substitutes for leaf mould was, he considered, cocoa-nut fibre. The market gardeners near London used spent hops largely, which he preferred to peat moss litter. The latter required to be thoroughly decomposed before being used, as it was such an absorber and retainer of moisture when at all fresh, and plants potted in compost containing it in this state were liable to become waterlogged. Several members followed up the discussion, including Mr. Hannah, who said that in the cultivation of Azaleas he used one-third of leaf soil. A vote of thanks to the lecturer and a similar compliment to the Chairman terminated the meeting.

LIVERPOOL NOTES.

ROSELEIGH, WOOLTON.

WHEN visiting Roseleigh, the residence of Lieut.-Col. Gaskell, there were many things of interest to notice, but prominence must certainly be given to a splendid stage of Calceolarias, alike for the excellence of the strain and for the perfect way in which they are grown. The seed was sown the first week in May of last year, and the plants have been grown very cool throughout. Some of the plants in 10-inch pots measured 4 feet across, with plenty of stout foliage entirely free from insects. The strain is Webbs' of Stourbridge, and contains beautiful selfs as well as spotted varieties. To see them grown in such a perfect manner says a great deal for the care and attention bestowed upon them by Mr. Kneale, the gardener.

Auriculas in pots are also grown more extensively than in many places, and some pretty varieties were in flower at the time of my visit. Colour was lacking to some extent, but by careful fertilisation Mr. Kneale is getting, in a promising lot of seedlings, some of the deeper shades of colour he at present lacks. On the north side of a high wall was a beautiful sloping bank of Tulips, and as I saw them they looked superb. The variety was Artus, and the effect produced by the fine strong footstalks and brilliant scarlet flowers left an impression on my mind which is not likely soon to fade.

Two houses are devoted to the cultivation of Tea Roses. They are planted out in beds, and were quite free from mildew and aphides, the former being completely kept under by the use of carbolic soap, and the latter by Campbell's fumigating insecticide, which appears to be a great boon to gardeners. Beautiful buds in all stages are the reward of keeping them in clean order.—R. P. R.

RANUNCULUS CORTUSÆFOLIUS.

IN a recent issue of "Garden and Forest" some interesting notes on this fine *Ranunculus* (fig. 72), from the pen of Mr. W. Watson, were

Hylton, of Merstham House, in Surrey, where I am informed it grows well in the open air with a little protection in winter. It is a rare plant in English gardens, notwithstanding its introduction forty years back and the unquestionable beauty of its flowers. It has a large fleshy,



FIG. 72.—*RANUNCULUS CORTUSÆFOLIUS*.

published. He wrote:—A flowering specimen of this plant, which was described by Sir W. Hooker forty years ago as "unquestionably the handsomest of all the Buttercups," was a special attraction at the last meeting of the Royal Horticultural Society. It was sent by Lord

tuberous rootstock, an erect stem as thick as a man's little finger, and sometimes 4 feet high, freely branched above. The leaves are a foot across, slightly lobed and toothed, hairy, as also are the stems. The flowers, which are in large, broad, crowded corymbs, are erect, 2 inches

or more across, golden yellow, varnished or shimmering, as in all Buttercups, the petals of good substance, the fragrance strong and pleasant. The Rev. E. J. Lowe, writing of this plant in "Hooker's Journal of Botany" (vol. ix. 69), says it is a very striking, large and handsome plant, of almost gigantic size and stature in its genus and of a noble appearance. Its enormous Buttercup-like flowers are conspicuous at considerable distances on the ledges within the clefts of high rocks or cliffs in the ravines in Madeira. It is also found in the Canary Islands. Another name for it is *R. grandifolius*. At Kew the plant is not hardy, but the late Mr. Giles Mundy grew it well in his little garden at Farnham. It is curious, too, that, while Mr. Smith stated in the "Botanical Magazine" under tab. 4625, that it required the protection of a frame or handlight in winter, Sir W. Hooker says in the same place that "it is quite hardy." In favoured localities I know it thrives in England. It is worth growing as a pot plant for the sake of its handsome fragrant flowers, which open in March.

NOTES ON CABBAGES.

It is gratifying to note how thoroughly useful Ellam's Early Cabbage has proved this season in localities differing so widely as do those from which numerous correspondents of the Journal recorded their experience on page 378. On heavy and light soils alike it seems to have come through the trying ordeal of the late severe winter far better than most varieties. This alone, independently of its earliness, should entitle it to a place in any kitchen garden.

If we were certain to have a succession of severe winters the bulk of Cabbage seed might with advantage be sown earlier than is usually thought necessary; but with such a fickle climate as ours there is nothing like providing for any contingency, and this, as most of your correspondents rightly point out, can be done by sowing at different dates. In this respect Mr. E. Molyneux has outstripped us all by making his first sowing at the end of June. As this practice answers so well in Hampshire, those in colder localities should certainly make use of the "wrinkle." This year another point well worthy of attention is that recorded by Mr. S. Scott—viz., that whenever the land is very heavy the bulk of Cabbage seed ought to be sown earlier than is necessary when the plants are grown on light soils. Good cultivation, spring feeding, and frequent stirring of the soil do much towards securing quick growth, and consequently earliness. A little manure forked in between the rows, as advised by "R. P. R.," is, no doubt, a good plan, but watering with liquid manure, and giving a light dressing of nitrate of soda, brings Cabbages to maturity during such seasons as the present one, especially on light soils, quicker than any other method I know of.

As my old friend, Mr. J. Friend, has carried out this excellent practice, I have no doubt his Cabbage bed is something to be proud of, as he is not the man to pride himself upon anything only second-rate. I see by the concluding note from Mr. A. Murray that a rival Cabbage, under the name of Webb's Emperor, is in the field. If Mr. Murray had hailed from some sheltered nook around the southern coast I should not have been surprised to hear of his having cut Cabbages this year by the second week in April. That he should be able to do so in Northumberland is a great surprise, to me at least, and the variety he names must be an advance upon Ellam's Early if such results have been secured under ordinary cultivation, and not by reason of being grown in a position especially sheltered. Additional information on these points will, I am sure, be welcomed by many Journal readers, for much as they dislike discarding old favourites, any hardy variety which promises to be a fortnight earlier than Ellam's Early will be quickly turned to good account by Cabbage growers, both young and old.—H. DUNKIN.

INTERNATIONAL HORTICULTURAL EXHIBITION.

GREAT SUMMER FLOWER SHOW, MAY 27TH AND 28TH.

Is the first great Show held in connection with the International Horticultural Exhibition at Earl's Court to be written down a success? It is a moot point. If we consider quality and diversity of material then the answer would be a prompt affirmative, for there was a wealth of beauty such as few shows of recent years could boast. Magnificent foliage and flowering plants were there, great in numbers and beauty, a good display of Orchids, looking small after the Temple perhaps, but still attractive, huge breadths of cut flowers, fine groups of Roses, and no mean display of fruit. But when we go farther, consider the general aspect of the display, and the effect it would be likely to have upon the public, it is another matter. It is to be feared that the officials suffered from an embarrassment of riches, and dwarfed the Show, which, collectively, would have been one of great magnitude, in their efforts to—we will not say arrange it—but to find a place for the plants. "There are two or three places full here," said one, indicating an annexe, "and about three acres over yonder," with a wave of his hand, which took in the remainder of the Exhibition, including Buffalo Bill's encampment. Whether any of the plants really got stowed away in the habitations of the redskins is a point which was not settled by subsequent inquiry, but certainly they were scattered about nearly everywhere else. The side hall near the West Brompton entrance was crammed with plants and

flowers, so were several of the galleries leading from it. Others overflowed into the main building, and when the landscape garden was reached yet more were found, stood about here and there on the turf. But the main portion of the Show was still a quarter of a mile away, being arranged in two annexes near the Restaurant Français in the gardens. And what was worse, perhaps, was that the exhibits in the different classes were in many cases split up and wide apart, so that Judges, reporters, and public alike found no sequence. Some of the former found themselves sadly in need of a course of athletic training, and at 4 P.M. on the opening day their work was still incomplete.

It was a magnificent Show not made the most of, and the question suggested itself, Why not have utilised the magnificent landscape garden? The groups could have been disposed with marvellous effect on the slopes, the specimens would have nobly filled the hollows, while Ferns, flowering plants, and cut blooms would have completed such a *tout ensemble* as few exhibitions in the past have ever equalled, and none excelled. There would have been difficulties in the way, of course, for the garden would have had to be partially dismantled, but they were by no means insurmountable, and the result would have been the talk of London.

A few particulars of the Show are appended. They are a little spasmodic, doubtless, and perhaps incomplete, but that was unavoidable under the circumstances. In turning to the individual exhibits it is pleasant to acknowledge their general high merit and beauty. There could be no two opinions on this point. Many were superb, and others far above the average. Mr. Wills' Palms, Mr. Offer's Crotons, Mr. Chapman's and Mr. Cypher's specimens in flower were magnificent in their way, reviving recollections of other days, but perhaps these classes of plants are not now sufficiently popular to justify such provision being made for them. Mr. Cypher, Messrs. Charlesworth, Shuttleworth & Co., Messrs. Hugh Low & Co., Messrs. Sander & Co., and others had fine displays of Orchids. The St. Albans firm further distinguished themselves, and afforded interest to visitors, by a beautiful assortment of new foliage and flowering plants, several being exceptionally striking. There was such an abundance of good material among the general flowering plants and cut blooms that it is almost impossible to particularise. The fruit and vegetable classes were not very well filled, and generally speaking the quality was fair.

SPECIMEN AND OTHER PLANTS.

In the open class for twelve stove and greenhouse plants, distinct, for which prizes were offered of £12, £8, and £6, Mr. James Cypher, Queen's Road Nursery, Cheltenham, was justly awarded the premier prize for admirably trained and profusely flowered examples of *Erica Cavendishiana*, *Franciscea calycina* major, *Pimeleas spectabilis* and *Hendersoni*, *Hedera tulipifera*, *Anthurium Schertzerianum* and *Schertzerianum Cypheri* (a variety of much deeper colour than the other, and with larger spathes), *Ericas Bothwelliana* alba and *ventricosa coccinea* minor, *Aphelexis macrantha* purpurea, *Azaleas grandis* and *Mdlle. Leonie Van Houtte*. Mr. J. H. Mould, Pewsey, received the second award for large examples of *Dracophyllum gracile* (a plant evincing much cultural skill), *Allamanda magnifica*, *Bougainvillea glabra* (a fine plant, but requiring a little more time to develop its attractive bracts), *Ericas Cavendishiana*, *Aristella*, and *tricolor Wilsoni*, a widely spread *Phœnocomma prolifera* Barnesi, *Hedera tulipifera*, *Statice profusa*, *Anthurium Schertzerianum*, and *Tremandra ericæfolia*. A silver medal was awarded to Mr. Mould for his fine *Ericas*. Mr. John Currey, West End, Wilton Road, Salisbury, was placed third, a large plant of *Erica Cavendishiana* being his best. The collection of six stove and greenhouse plants exhibited by Mr. W. Chapman, gardener to J. Spode, Esq., in the amateurs' section, far surpassed any other exhibit of this class of plants in the Show, and consisted of magnificent examples of *Ixoras Dixiana* and *Wilsoni*; a most profusely bloomed and fresh plant of *Statice profusa*, *Anthurium Schertzerianum*, carrying from seventy to one hundred spathes; *Aphelexis grandiflora*, and *Tremandra ericæfolia*, a crowded mass of bloom. A silver medal was deservedly awarded for this remarkable collection. Mr. W. Finch, gardener to James Marriott, Esq., Queen's Road, Coventry, was placed second in this class, *Azalea Mabel* and *Erica affinis* being his best plants.

Mr. Wiggins won with Show and Fancy Pelargoniums in the trade class, and the best six Show varieties in the amateurs' class were exhibited by Mr. D. Phillips, gardener to B. W. Mann, Esq., Langley Broom, Slough, to whom the first prize was awarded. These plants were well grown and densely flowered, the varieties shown being Gold Mine, Kingston Beauty, Royal Review, Gloriana, Lady Isabel, and Prince Leopold. Mr. Phillips also took first honours for six Fancy Pelargoniums, showing good examples of Lady Carrington, Mrs. Porter, Princess Teck, East Lynn, Delicatum, and Mrs. Pope. These plants were even more densely flowered than the Show types. The same exhibitor gained first prize for six Zonals, with medium-sized specimens of Mrs. Gordon, James Macintosh, Rev. Harris, Mr. H. Cannell, Norah, and Lord Chesterfield.

Greenhouse Azaleas were well represented. In the nurserymen's class Mr. C. Turner, Slough, carried off the highest honours for eight plants, showing superb specimens remarkably well flowered. The varieties exhibited were Madeleine, Etendard de Flandres, Roi d'Hollande, Bijou de Paris, Mrs. Turner, Apollo, Madame C. d'Hamele, and Duc de Nassau. Mr. Mould and Mr. Henry James, Castle Nursery, West Norwood, S.E., were second and third. In the amateurs' classes the Azaleas were also very good. Mr. A. Offer, gardener to J. Warren, Esq., Handcross Park, Crawley, staged the best six plants, the varieties

being Mrs. Turner, Duc de Nassau, Roi d'Hollande, Eulalie Van Geert, Model, and Prince Albert.

Mr. Hooper, Vine Nursery, Widcombe Hill, Bath, won both with Pansies and Violas in pots, the plants being beautifully flowered and the varieties good. For Sarracénias Messrs. Peed & Son were first, and they had some remarkably fine examples—so good, in fact, that a silver medal was also awarded to them. Mr. James was second. Mr. J. Day, gardener to W. S. Glover, Esq., was the most prominent amateur exhibitor of Caladiums. The first prize pair of Tree Ferns came from Messrs. B. S. Williams & Son, the second from Mr. Offer, and the third from Mr. Ford.

Messrs. Wills & Segar, South Kensington, were awarded first prize for the nine Palms. The specimens shown were most tastefully arranged, and varied in height from 4 to 20 feet. The largest was a magnificent specimen of *Latania borbonica*, and the best of the remaining eight were *Phoenix canariensis*, *Pritchardia pacifica*, *Phajus humilis*, *Kentia Wendlandia*, *K. Canterburyana*, and *K. Belmoreana*. Mr. Cypher, Cheltenham, gained the second prize for very fine specimens. Mr. Offer showed some grand plants in the amateurs' class for six, his *Kentia Canterburyana* and *Phoenix tenuis* being gigantic specimens. Messrs. E. D. Shuttleworth & Co. won in the trade section with ten Crotons, having small but very healthy plants; and Mr. Offer was successful amongst the amateurs, also receiving a silver medal, which he well deserved. He had a magnificent collection. His varieties were undulatus, Queen Victoria, Warreni, Prince of Wales, Evansianus, and Disraeli, all finely coloured. Mr. J. Ford and Mr. Currey also had some fine plants. The first prize for twelve *Dracenas* went to Messrs. J. Laing & Sons, Forest Hill, who had some healthy and well coloured plants; the second falling to Messrs. J. Peed & Son, and the third to Mr. James. In the amateurs' class Mr. Offer was to the fore, winning with clean healthy plants. Mr. W. Howe, gardener to H. Tate, Esq., Park Hill, Streatham Common, S.W., was second, and Mr. J. Lambert third. Messrs. J. Peed & Son scored a creditable victory with ten Caladiums, Messrs. Laing following. Neither had very large plants, but they were in admirable condition.

Mr. Cypher had a beautiful group of Orchids, Palms, Ferns, and other plants gracefully displayed, and received the first prize, Mr. James being second. Mr. Currey won in the amateurs' class, also with an attractive arrangement.

Mr. Jas. Cypher had some fine specimens in the class for twelve Orchids, his *Cattleya Mossiæ*, *Dendrobium Bensoniæ*, *Cypripedium caudatum*, and *Dendrobium thyrsiflorum* being very good. He was placed first, and Mr. Henry James second. Messrs. Laing & Son had some delightful Begonias, being placed first for twelve singles, and also for twelve doubles. They also won with twelve Gloxinias, well flowered plants, carrying good blooms. The best amateurs' Gloxinias were those from Mr. H. Long, gardener to H. C. Barker, Esq., Leigham Holme, Streatham. Herbaceous Calceolarias were exceedingly well shown by Mr. W. Mowbray, gardener to Major the Hon. H. C. Legge, The Gardens, Fulmer, Slough, to whom the first prize was awarded for six plants. Mr. H. Long, Langham Holme, Streatham Hill, S.W., was second, and Mr. C. Lane, Bruntwood, Upper Caterham, third. In the nurserymen's class Messrs. J. James & Sons were awarded first prize, and Messrs. J. Peed & Sons were a close second. In both classes the plants were well flowered. Messrs. B. S. Williams & Son had a neat collection of Amaryllises, for which they were placed first in the class for twelve, and they also won with twelve *Clivias*, the plants carrying fine heads of bloom.

In the class for six fine-foliage plants, distinct, Mr. A. Offer was a long way ahead of all other competitors with massive plants of *Cycas revoluta*, *Croton angustifolius*, *Cycas circinalis*, *Kentia Belmoreana*, *Croton princeps*, and *Alocasia macrorrhiza variegata*, these plants being remarkable examples of cultural skill. Mr. J. Ford, gardener to Sir C. Pigott, was second, also with handsome plants. Mr. Cypher was first in the trade section.

Mr. Offer was first with stove and greenhouse Ferns, having *Davallia polyantha* and *Davallia Mooreana*, 8 or 9 feet in diameter; *Lastrea laserpitifolia*, *Alsophila australis*, *Cibotium Schiedei*, and *Dicksonia antarctica*. Mr. G. Ford received the second prize for a grand collection, *Nephrolepis exaltata* being especially good. Mr. W. Howe was a very good third.

The first prize for hardy herbaceous and alpine plants went to Mr. T. S. Ware, and the second to Messrs. G. Paul & Son. The former had a grand display, and he also won with hardy shrubs in flower. Mr. Ware's exhibits in these two classes formed a huge bank outside the annexes, and were much admired. A silver medal was awarded. Messrs. Barr & Son were first for a collection of Tulips, and Mr. Barlow for florists' varieties, Lord Hope winning with *Rhododendrons*.

ROSES.

Roses were well shown, but the classes were too much split up to be effective. Messrs. Paul & Son, Cheshunt were first with a neat and fresh collection, including good plants of Mrs. J. Laing, La France, Innocente Pirola, Madame Lacharme, and Edouard Morren. Mr. Charles Turner, Royal Nurseries, Slough, received the second award for excellent plants, containing some very fresh flowers, especially prominent being Céline Forestier, Comtesse de Serey, Etouard Morren, and La France. Messrs. Paul & Son, Cheshunt, staged a fine group of thirty Roses in any size pots, including standards, which contained many novelties, Ernest Metz, Elise Fugier, Madame de Watteville, and Innocente Pirola were particularly conspicuous. For eighteen Tea-scented Roses, distinct, Mr. George Mount, Exotic Nursery, Canterbury, was a good first for fresh full flowers of Innocente Pirola, Maréchal Niel, Anna Olivier,

Comtesse de Nadaillac, The Bride, Catherine Mermet, Souvenir d'Elise, Miss E. Brownlow, Jean Ducher, Niphotos, Souvenir d'un Ami, Madame C. Kuster, Souvenir de Madame Pernet, Souvenir de S. A. Prince, Madame Hoste, Souvenir de Paul Neron, Marie Van Houtte, and Madame de Watteville. He was also placed first for twelve Roses other than Teas, and Mr. Charles Turner second, both exhibiting fresh and perfect blooms. Mr. H. Long won with eight plants in the amateurs' class.

NEW AND CERTIFICATED PLANTS.

New plants were a great feature, especially those from Messrs. Sander and Co. The St. Albans firm were first in six out of the seven classes provided—namely, for three new plants shown for the first time; for one new plant not in flower; for twelve new plants introduced since 1888; for six new plants introduced since 1888, for one and for three new Orchids—a record to be proud of. Several of the plants shown received first-class certificates; for instance, a new variety of *Oncidium Gravesianum* named *vivicans*; *Odontoglossum Bleui splendidissimum*, described on another page; *Cocos Pynaerti*, a most graceful species; *Anthurium albanense*, very rich in colour; *Alocasia nobilis*, a species with silvery shield-shaped leaves; *Pteris phœnicophorum Victoriae*, very graceful and attractive; *Cyclanthus Godseffianus*, *Pandanus Dyeriana*, *Anthurium Lawrencei*, with ivory white spathe; *Vriesia tessellata Sanderæ*, beautifully marbled and striped—a most handsome plant; *Maranta Sanderiana*, bronzy green leaves striped with white; *Dracena Sanderiana*, a small leaved species, having greyish green leaves margined with creamy white; *Cypripedium Chamberlainianum*, and *Dipladenia Marie Henriette*, deep purplish maroon, very distinct, and with small foliage. The latter was one of the most noteworthy plants in the collection.

First-class certificates were awarded to Messrs. Laing & Sons for several Begonias—namely, Baron Schröder, scarlet; Stanstead Glory, bright rose; Lady Brooke, salmon red; Mrs. Hudson, rosy scarlet; Rosebud, pale rose; and Alfred de Rothschild, intensely rich crimson—doubles; and for Duchess of Westminster, crimson, white centre—single. They also received a first-class certificate for *Caladium B. S. Williams*, crimson ground edged with green. L'Horticulture Internationale received first-class certificates for *Stenandrium Lindenii* and *Cyrtosperma ferox*, also a silver-gilt medal; and Mr. Knight, gardener to Capt. Elliott, received a first-class certificate for *Calla Elliottiana*.

FRUIT AND VEGETABLES.

For eight dishes of fruit, distinct kinds, Mr. McIndoe, gardener to Sir J. Pease, Bart., M.P., Hutton Hall, Guisborough, was first with very good Black Hamburg and Foster's Seedling Grapes, admirable Belle-garde Peaches and Lord Napier Nectarines, a beautiful Best of All Melon, large Noble Strawberries, Frogmore Bigarreau Cherries, and Queen Pine, altogether an excellent collection. Mr. Crawford, gardener to Colonel Thorpe, Coddington Hall, Newark, was second, but some distance in the rear. His Grapes were moderate, but he had a good Scarlet Premier Melon and a fair dish of Bramley's Seedling Apple. There were seven in competition with black Grapes, Mr. Osman, gardener to L. Baker, Esq., Ottershaw Park, Chertsey, winning with excellent clusters, well finished and coloured. Mr. McIndoe was second with smaller berries and rubbed bunches, and Mr. Edmonds, Bestwood Gardens, Nottingham, third. Mr. McIndoe had large clusters of Foster's Seedling in the white Grape class, and although the berries were a little uneven, they well deserved the premier award. Mr. E. Peters, gardener to J. L. Mansell, Esq., 2, Somerset Terrace, Guernsey, was second with much larger berries, but the bunches were loose. Mr. H. Harris, gardener to Mrs. Eversfield, Denne Park, Horsham, was third. Mr. G. Norman, gardener to the Marquis of Salisbury, Hatfield, showed a marvellous box of Auguste Nicaise in the class for twenty-five Strawberries, and won easily; Mr. W. Chuck, gardener to P. Thellusson, Esq., Brodsworth Hall, Doncaster, was second with British Queen; and Mr. Thompson, gardener to Messrs. W. & E. Wells, Hattonhurst, Hounslow, third with Sir Charles Napier.

Mr. Norman easily won with Strawberries in pots, showing healthy compact plants of Marguerite bearing large fruits. Mr. Thompson was second with Sir Charles Napier, and Mr. Chuck third with British Queen. Mr. McIndoe had the best dish of Cherries, a very good sample of Black Tartarian, and Mr. Blair, gardener to the Duke of Sutherland, Trentham, was second with Early Lyons, also very good. Mr. W. Robins, gardener to Col. Lee, Hartwell House, Aylesbury, had a splendid dish of Hale's Early Peaches and was placed first, Mr. McIndoe following with Grosse Mignonne. The latter won with Nectarines, having a fine dish of Lord Napier, Mr. Hudson, Gunnersbury House Gardens, Acton, and Mr. A. Smith following with the same variety. Mr. Crawford had the best scarlet Melon, a neat fruit of Premier; Mr. Lockie being second with Blenheim Orange, and Mr. Churchman, The Vineries, Wokingham, third with Sutton's Scarlet Invincible. Mr. Bowerman, gardener to C. Hoare, Esq., Hackwood Park, Basingstoke, had the best green-fleshed fruit (The Countess), a very handsome specimen, smooth, bright golden orange in colour, and of delicious quality. Mr. C. Ritchings, gardener to Dr. Frankland, The Yews, Reigate Hill, was second with the same variety, and Mr. McIndoe third with Best of All. Mr. J. C. Tallack appeared to be the only exhibitor of Figs and was placed first. Mr. Blick, gardener to Martin R. Smith, Esq., The Warren, Hayes Common, exhibited a collection of Melons in different varieties, and Mr. A. Smith, Rolleston Hall, Burton-on-Trent, had two fruits of the Countess Melon.

Some fine dishes of Mushrooms, grown outside, with Bicton Pine Strawberries, Ruxley Lodge Melons, and Apples were sent by Mr. J.

Miller, gardener to Lord Foley, Ruxley Lodge, Esher (silver medal). Mr. George Mount, of Rose growing fame, was first in the Tomato class with a splendid dish of Perfection, Mr. F. le Poidevin, La Porte, Castel, Guernsey, being second, and Mr. T. Lockie, Oakley Court Gardens, Windsor, third with the same variety. Mr. Lockie had the best brace of Cucumbers—Lockie's Perfection, Mr. Mortimer, Swiss Nursery, Farnham, being second with Express (Sutton's Al), and Mr. Crawford third with Webb's Perpetual Bearer. Mr. Newell, gardener to Sir E. Saunders, Fairlawn, Wimbledon Common, was the only exhibitor of salads and was placed first. Mr. Lockie had the best collection of forced vegetables; he had a splendid trio of Royal Windsor Cucumber, a fine dish of Snowdrop Potatoes, good American Wonder Peas, Early Gem Carrots, Perfection Tomatoes, Long White Marrows, Negro Beans and Mushrooms. Mr. Crawford was second, and had a very fine dish of Puritan Potatoes, also excellent Peas and Carrots. Mr. McIndoe was third. Mr. Crawford won with a collection of eight kinds not forced, Model Broccoli being good. Mr. Mortimer received a silver medal for Cucumbers and Tomatoes, and Mr. Churchman one for Melons. Mr. Harwood had the best Asparagus.

MISCELLANEOUS EXHIBITS.

Many fine groups and collections of cut blooms were staged in the main building near to the West Brompton entrance. Messrs. Cutbush and Sons showed hardy flowers, including two fine displays; and Messrs. Dobbie & Co., Rothsay, N.B., staged some splendid Violas and Pansies, as well as Sweet Peas (silver medal). Mr. A. Waterer, Knaphill Nursery, Woking, had the same Azaleas that were shown at the Temple Show, and a hamper of cut blooms of Genista Andreanum (silver-gilt medal). Roses, too, were shown similarly to those at the Temple by Messrs. W. Paul & Son, for which a gold medal was awarded, as also were Ferns by Messrs. Birkenhead, Sale; and flowering and foliage plants by Mr. G. Phippen, Reading. Messrs. Birkenhead were awarded a silver-gilt medal, and Mr. Phippen a bronze medal. Mr. J. Jennings, gardener to L. de Rothschild, Esq., Ascott, Leighton, was awarded a silver-gilt, and Mr. T. H. Crasp, gardener to Lord Wimborne, Canford Manor, Wimborne, a silver medal for a grand group of "Malmaison" Carnations; and a large number of Amaryllis, Pyrethrums, Pæonies, and Irises were shown by Messrs. Kelway & Sons, Langport (silver-gilt medal). Messrs. J. Laing & Sons, Forest Hill, S.E., and W. Cutbush & Sons, Highgate, had tastefully arranged groups of miscellaneous plants, as also had Messrs. B. S. Williams & Son. Messrs. Laing were awarded a silver-gilt medal, Messrs. Cutbush a silver medal, and Messrs. B. S. Williams a silver-gilt medal for the respective exhibits. Messrs. Barr and Son sent a fine collection of Tulips and other hardy flowers (silver medal), and cut blooms of Show and Fancy Pansies were shown by Mr. Alfred Smith Dononley, High Wycombe, and F. Hooper, Widcombe. A bronze medal went to Mrs. Harry Turner for a box of splendid Maréchal Niel Roses, the blooms being of enormous size and rich in colour. Mr. T. S. Ware, Tottenham, had Begonias; and Messrs. Hugh Low & Co. Heath, for which a silver medal was adjudged. A gold medal was awarded to Mr. Louis Van Houtte for a case of Bertolonias.

A large group of miscellaneous plants, not for competition, comprising huge Palms, Dracænas, Azaleas, Acers, Crotons, and Ferns was arranged by Mr. W. Icton, florist, Putney Park, who also showed a small collection of Tea plants grown at his nursery. M. D'Haene received a silver-gilt medal for Azaleas, new plants, and Palms, and a silver medal for Orchids. Mr. Chard had some attractive table decorations (silver medal).

Orchids in the miscellaneous section were not very numerous in separate groups, although they played a prominent part in the various collections of plants. Messrs. Sander & Co., St. Albans, however, staged a charming group of new and rare species and varieties, many of which were conspicuous at the Temple Show. Noticeable among others in this group were *Odontoglossum crispum* Sanderæ, *O. Pescatorei ampliatum*, *O. vexillarium* Sanderianum, *O. v. splendidum*, *O. Louryanum*, *Vanda Sanderiana*, *Cypripedium Wallisi*, and *Cattleya Mossiæ* Wagneri. A gold medal was awarded. Messrs. Hugh Low & Co. were also awarded a gold medal for a collection of Orchids, which made a charming display. Mr. Prinsep, Buxted, Sussex, staged his magnificent plants of *Dendrobium nobile*, which were referred to in our last issue, and gained a silver-gilt medal for them. Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, also staged a group of Orchids in the main building, comprising many choice species and varieties, and received a gold medal, another falling to Messrs. B. S. Williams & Son for their collection.

Messrs. J. Peed & Son had a beautiful display of Anthuriums, interspersed with small Palms, Asparagus, and Ferns, for which they were awarded a silver medal; and one was also awarded to Messrs. Lemoine et fils for double Lilacs.

MARKET GROWERS' SECTION.

In this section the exhibits were by no means numerous, although those staged made an excellent display. For a group of market, flowering, and foliage plants arranged for effect, Messrs. J. & J. Hayes, Lower Edmonton, took first prize with a collection of sturdy plants. These comprised *Calceolarias*, *Pelargoniums*, *Mignonette*, *Spiræas*, and *Hydrangeas*, all grown on the market system. The first prize for the best 100 market plants in flower went to Messrs. William & Frederick Brown, Brent Nurseries, Hendon. This collection included *Fuchsias*, *Pelargoniums*, *Marguerites*, and *Zonal Pelargoniums*. These exhibitors also gained second prize in the first-mentioned class.

Of fruits and vegetables in this section Messrs. N. White & Co.

made a grand display, for which a gold medal was awarded. The fruits included St. Michael (Azores) Pine Apples, Tasmanian Apples in excellent condition, French Strawberries, Oranges, Lemons, and Cornish Gooseberries, the latter being very fine for the time of the year. Among the vegetables Asparagus, new Potatoes, Onions, Beans, and Cucumbers were conspicuous. The second prize, or a silver medal at will, went to Mr. A. Johnson, Central Avenue, Covent Garden, who showed Australian Apples, Pine Apples, Cherries, and Nuts of various kinds. Mons. F. Le Poidevin was awarded first prizes for the best packed baskets of Melons and Tomatoes, and an extra prize went to the same exhibitor for some splendid Beans.

Mr. Chas. Chambers, Kent Preserving Works, Maidstone, received a silver medal for a collection of jellies, jams, and marmalades, neatly done up, and delicious in quality, and Mr. R. Brown a bronze medal for honey.

A word of acknowledgment should be given to the officials, who worked hard under difficulties. Prominent amongst them were Mr. W. Marshall, Mr. Harry Turner, and Mr. Richard Dean, the Floral Committee Chairman giving invaluable help.

A banquet was held in the evening. About 200 persons assembled under the presidency of Mr. Milner. It was international in character, French, Dutch, and Belgian representatives being present, while the United States were represented among others by General Sheridan and Colonel Cody. Most of the chief metropolitan nurserymen attended. The speeches throughout, in whatever language delivered, had the true horticultural ring about them, the lion's share of applause falling to Mr. Milner, Sir Charles Tupper, and General Sheridan.

THE TEMPLE SHOW.

Certificates and Awards.

It was not unnatural to look for many flowers of special interest at so large and varied an exhibition as that held in the Inner Temple Gardens by the Royal Horticultural Society last week. They were more particularly anticipated, perhaps, amongst the Orchids, and no disappointment awaited those who expected them. Messrs. Sander & Co.'s exhibit was plentifully sprinkled with glass cases covering some new or rare gem, and visitors clustered thickly around them, the reputation of the firm insuring something worthy of inspection. Nor were Orchid novelties altogether wanting in other collections. Of general plants, *L'Horticulture Internationale*, Brussels, were the most prominent exhibitors. A few notes are devoted to the Orchids and other plants referred to in our last issue as having received certificates or awards of merit.

ORCHIDS.

Cypripedium hybridum *Vipani* (Capt. Vipan).—A hybrid between *C. lævigatum* and *C. niveum*, favouring the latter, particularly in the white, ivory-like lip. The petals are long and wavy, white lined with rose dots; the dorsal sepal similar, but with darker streaks; the lower sepal pure white. This is a most beautiful and distinct hybrid, undoubtedly a great acquisition. See fig. 73 (page 421). (First class certificate).

Phaius Sanderiana (F. Sander & Co.).—Exhibited at the Drill Hall on May 3rd, when it received an award of merit. It is a fine and distinct species, and was described in the Journal of May 5th as follows:—The bloom is of striking appearance, large in size, the sepals and petals about equal, and in colour brownish red. The lip is white, with patches of bright rose in the centre surrounding a brownish stripe. The throat is deeply coloured with magenta (first-class certificate).

Cypripedium Chamberlainianum excellens (F. Sander & Co.).—This resembles the now well-known type in habit, foliage, and bloom. The lip is similar, but the petals are greenish white dotted with purple, and the dorsal sepal, instead of being green as in the type, is white suffused with greenish yellow, dotted with lines of purple. It is a pleasing variation, and no doubt more may be looked for (award of merit).

Odontoglossum crispum *Sanderæ* (F. Sander & Co.).—A superb form, the sepals, petals, and lip being nearly covered with brown blotches and spots. One of the most heavily coloured flowers yet seen (first-class certificate).

Odontoglossum Bleui splendidissimum (F. Sander & Co.).—A beautiful form, flowers very large, the base of the lip marked with light brown, and the base of the petals soft rose. The remaining portions of the lip, petals, and sepals are pure white (first-class certificate).

Odontoglossum Louryanum (F. Sander & Co.).—This is a most distinct and beautiful form. The sepals are light brown tipped with yellow, the petals similarly coloured, but with a few blotches of white. The basal area of the lip is pure white margined with light brown, the apical portion light brown. Altogether a harmonious combination of colours (first-class certificate).

Cattleya Mendeli, *Cookson's variety* (F. Sander & Co.).—A magnificent variety. The petals are of great size, gracefully arched, fringed, and of a soft rose hue. The smaller sepals are of the same shade. The lip is of enormous depth and breadth, beautifully frilled. A rich carmine hue extends to the entrance to the throat, which is white, delicately tinted with pale yellow (award of merit).

Odontoglossum Wilkeanum nobilior (Charlesworth, Shuttleworth and Co.).—This has flattened pseudo-bulbs and long narrow leaves, the peduncle being nearly 2 feet in length. The flowers are borne alternately, and are creamy white, blotched and spotted with light brown. The lip is tinted with lemon at the base and deeply margined with white (award of merit).

Cymbidium Lowianum viride (W. L. Lewis & Co.).—This is distinct from the type in the bright green colour of the sepals and petals, and in the narrower lip, which is pointed and bright yellow (award of merit).

Cypripedium southgatense (W. L. Lewis & Co.).—A hybrid between *C. bellatulum* and *C. Harrisianum*, the former being the seed parent. It is quite distinct from either. In the form of the lip it follows *C. Harrisianum*, but the petals and dorsal sepal more resemble *C. bellatulum*. The latter are deeply spotted, and lined with purple (first-class certificate).

Laelia purpurata Handleyanum (Jas. Cypher).—This variety is noteworthy for the distinct lip colouring, which is velvety purplish-crimson, intensely rich, the sepals and petals soft blush (award of merit).

GENERAL PLANTS AND FLOWERS.

Lobelia Barnard's Perpetual (H. Barnard).—A very dark form, with large flowers and a free bloomer. The colour is deep purplish-blue, and it should prove to be a great acquisition (award of merit).

Carnation Mrs. Geo. Devas (Martin R. Smith, Esq.).—A fine bold border flower, a yellow ground seedling, flaked with rosy crimson. This is a vigorous grower, and does not split the pod. The parents are Madame Maroc and Mrs. Reynolds Hole, the latter being the pollen parent (award of merit).

Carnation Mrs. H. Cannell (H. Cannell & Sons).—A free-flowering bright pink variety, very pleasing in colour and fragrant. Probably good either for pots or borders.

Pelargonium Princess May (Messrs. J. & J. Hayes).—A free-flowering show variety, bright salmon pink with purple blotch (award of merit).

Stenandrium Lindeni (L'Horticulture Internationale).—A very handsome dwarf Peruvian plant, almost reminding one of a Goodyera. The foliage is oblong, almost oval shaped, light green margined with dark bronzy green (first-class certificate).

Dichorisandra musaica var. gigantea (L'Horticulture Internationale).—Remarkable for the beautiful marbling of the foliage, which is densely lined with dark green on a lighter ground. The leafstalks and reverse of the leaves is purplish. The plant bears small bunches of bluish mauve flowers (first-class certificate).

Tradescantia Regina (L'Horticulture Internationale).—A Peruvian species of great beauty, somewhat resembling zebrina, but with much larger and handsomer foliage. The centre of the leaves is dark green flaked with white. Two broad flakes of white extend from base to tip, and the edge is marked with the same dark green as the centre. The young leaves are coloured with rich rosy mauve (first-class certificate).

Tradescantia superba (L'Horticulture Internationale).—A species from Ecuador, with broader foliage than the preceding, dark green shading to silver, the margin dark green (first-class certificate).

Smilax argyrea (L'Horticulture Internationale).—A beautiful species from Peru, having narrow pointed leaves, deep green, marbled with silvery blotches. The stems are slender, and armed with sharp spines (first-class certificate).

Labisia smaragdina (L'Horticulture Internationale).—A dwarf plant with rosettes of Rhododendron-like foliage, but softer; shield-shaped and glossy, the centres shaded with a band of velvety purple. It is an introduction from Borneo, and has not yet flowered (first-class certificate).

Pteris tremula densa (R. Smith & Co.).—A most distinct and beautiful Fern, quite Parsley-like in appearance. It is a seedling from *P. tremula Smithiana*, and is very compact and dense in habit (first-class certificate).

Dracæna Barteti (J. Laing & Son).—A remarkably handsome and distinct species, having deep purple leaves, margined with bright rosy scarlet. The young leaves are bright rosy scarlet (award of merit).

Croton Reidi (J. Laing & Sons).—A distinct and richly coloured species. The young foliage is bright green, the developed leaves light salmon red, with a margin of the same colour, the green only being present as a marbling (first-class certificate).

Tree Pæony Snowflake (T. S. Ware).—A very fine single, pure white, 8 inches across, with broad transparent petals (award of merit).

Tea Rose, Princess May (W. Paul & Son).—Soft rose, somewhat the colour of *Souvenir d'un Ami*, but distinct in form, having the shell-like petal of *La France* (award of merit).

Azalea Mrs. Anthony Waterer (A. Waterer).—A beautiful free flowering hardy variety, pure, transparent white, with a delicate lemon tint on the upper petal (first-class certificate).

Pteris serrulata gracilis (H. B. May).—A slender grass-like variety, the pinnules being less than an eighth of an inch in breadth. It should prove to be very valuable as a decorative Fern and for edging groups (first-class certificate).

Selaginella elegans (H. B. May).—A dense, free grower, of moss-like

appearance, after the style of *S. apoda*, deep rich green (first-class certificate).

Begonia Duchess of Westminster (H. Cannell & Sons).—A round, smooth, single, well formed, and substantial flower, bright orange shaded with rose (award of merit).

Begonia Leopold de Rothschild (H. Cannell & Son).—In richness of colour this double is remarkable. It is a glowing intense scarlet crimson, and stood out from all others in the group (award of merit).

Begonia Picotee (J. Laing & Son).—A flesh-coloured double with a clear Picotee-like edging of bright rose (award of merit).

Begonia Triumph (Laing & Son).—A fine double of large size and good form; colour bright rosy salmon (award of merit).

Begonia Duchess of Westminster, Laing's variety (Laing & Son).—A distinct and beautiful single, medium sized, well formed, and bright rosy crimson in colour, with clear white centre (award of merit).

Tree Pæony Orme (Kelway & Son).—A very large single variety, with distinct chocolate coloured flowers (award of merit).

Scolopendrium digitatum majus (W. & J. Birkenhead).—A handsome variety with broad wavy fronds divided at the summit and elegantly crisped (first-class certificate).

Scolopendrium crispum fimbriatum, Cropper, (Messrs. Birkenhead).—A beautiful fringed and crested form. The crests were only just developing on the plant exhibited, but showed it to be of great beauty (first-class certificate).

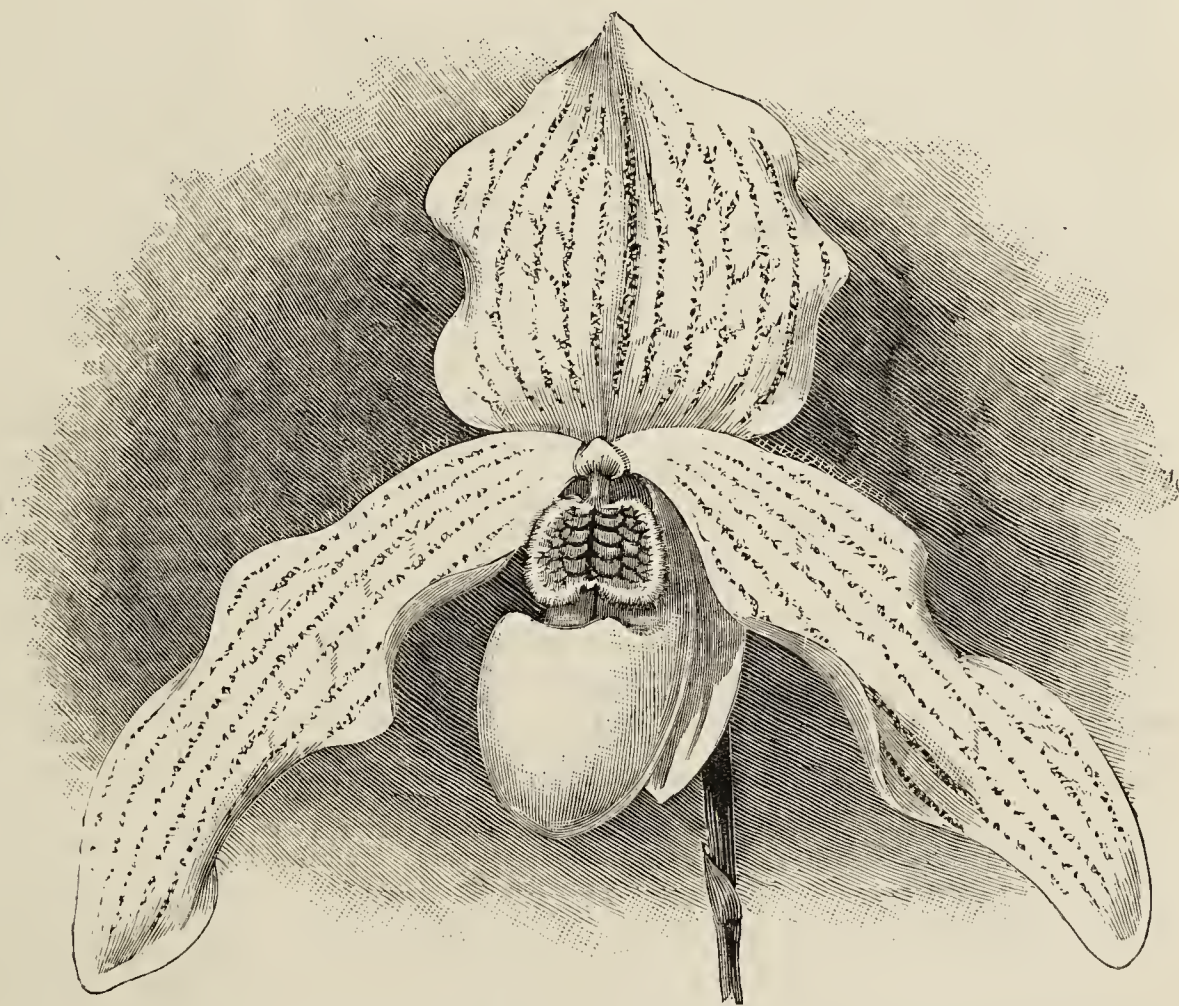


FIG. 73.—CYPRIPEDIUM HYBRIDUM VIPANI. (See page 420).

Gloxinia Clio (J. Veitch & Sons).—A very large, well formed, and beautiful flower, white mottled with rosy red. A free flowering variety (award of merit).

Gloxinia Cicely (J. Veitch & Sons).—A medium-sized smooth flower of great substance. Reddish purple with mauve shading and edged with white (award of merit).

Gloxinia Claribel (J. Veitch & Sons).—A large flower of perfect form, white lightly speckled with rose. A charming variety (award of merit).

FRUIT AND VEGETABLES.

Apple Armorer (Mr. C. Ross, Welford Park).—A small dessert variety with yellow skin, the upper portion russet. Deep-set eye. A variety of good quality, and evidently an admirable keeper (first class certificate).

Cucumber Sutton's Success (Mr. S. Mortimer).—A cross between Sutton's Express (A1) and Prizewinner. A handsome variety with hardly any neck. Four fruits were shown about 18 inches long, smooth, and remarkably well proportioned (first class certificate).

THE GRAIG, ROSS.

"COME and see my garden," was the cordial invitation given by the owner of the above beautiful residence, Mr. H. Southal, F.R.H.S., and it was accepted a few weeks ago. The garden is noted for its fine collection of herbaceous plants, and at any time is well worth going a

good distance to see, as everything is kept in the best order, and the requirements of the plants are very carefully studied. Each class of plants is grown in as natural a manner as possible, Mr. Southal having observed their habits in their native climes and acted accordingly in his garden. The result is very gratifying, almost everything feels at home and appears to thoroughly enjoy its position. Anemones are in great variety. *A. sylvestris* was especially striking by its large mass of beautiful pure white flowers; *A. appennina*, *A. fulgens*, and several others were very fine. *Daphne Fioniana* was represented by a fine plant covered with bloom; *D. Cneorum* was also blooming freely in several places.

In many instances the hardy Primulas were over, but *P. Sieboldi* in variety was blooming in fine bold masses; planted amongst rocks they were very conspicuous. Amongst Auriculas there were several of extra merit, particularly a yellow one with no name attached; if it has no name it deserved one, as it is the clearest yellow I have seen. *Ledum palustre* was blooming freely and growing vigorously. *Actæa rubrocapa* and one or two others were in full bloom, their whitish flowers showing up well. *Arnebia echioides* (the Prophet Flower) is seldom seen in such good health as at The Graig; the plants were covered with blooms, the bright purple spots in the yellow flowers rendering it very effective. *Arenaria montana*, planted amongst larger stones, was all covered with its pretty white flowers. *Alyssum saxatile compacta* also was very fine on the rockery, being one mass of yellow bloom. Amongst *Corydalis nobilis* appeared the best, which was in rude health by the side of a walk, a position evidently well suited to it. *Hutchinsia alpina* is growing well at the base of some large rocks, as is also *Lychnis alpina*, which was covered with its bright pink flowers. Gentianas are grown well in many varieties, some of which were past their best at the time of my visit, while the Gentian of commerce was just throwing very strong growths. *Orobanchium* is doing well. This variety is, I believe, rare and valuable.

Pæonia is represented by a very large collection, *P. anomala* being in bloom. Many others would be out in a few days, notably *P. Wittmanniana*, there being a magnificent clump of this very fine variety. *Stylophorum diphyllum* was producing a quantity of its pretty yellow flowers. *Trillium grandiflorum* was also in excellent condition, and worthy of a place in every collection. All the early Iris were over, but in a few days a fine lot of bloom will be on view, the spikes and buds being exceptionally strong. Mr. Southal evidently does not spare manure on those plants which are benefited by its application. Hyacinths and Tulips and some of our most ornamental British plants are included with good taste in this garden, and in some of the larger beds the centre is occupied with *Cydonia Maulei*, *Malus floribunda*, *Magnolia Lenni*, Judas Tree, *Kalmia glauca*, *Buddlea globosa*, *Viburnum Lantana*, Acers, &c. On a rockery in one corner of the garden the hardy *Cyclamens* are evidently in the right place, as it would be impossible for them to look in better health.

The residence of Mr. Southal stands on an eminence, and commands extensive views of the neighbourhood, reaching as far as the Welsh mountains in the distance. The house is nearly covered with climbers, including *Clematis montana*, *Ampelopsis*, *Escallonia macrantha*—which has suffered from the winter—*Garrya elliptica*, Roses, *Wistaria sinensis* and *W. sinensis alba*. Many plants could not be noticed in such a large collection, as some are going over and others coming on nearly all the year through, but in spite of the unfavourable spring there is a wealth of beautiful flowers in Mr. Southal's garden, which plainly indicates what may be done in flower growing without the aid of glass, and is far more lasting than summer bedding with its great expenses.—S. T. WRIGHT.



FRUIT FORCING.

PINES.—The suckers potted last March should, as regards the strongest, be in their fruiting pots. If they be not yet potted, no further delay must be tolerated, as retaining them too long in small pots is enfeebling, and sometimes causes the fruit to be thrown up prematurely. Recently potted plants must have a bottom heat of 85° to 90°, and be thoroughly watered, and they must not be watered again until the soil becomes dry, examining the individual plants before its application. Suckers now potted should be kept rather close and shaded from powerful sun. Young stock generally is making rapid progress. Allow such plants sufficient space for development, as sturdy plants only throw up fine fruit. Nothing is so inimical as crowding in their early stages. Ventilate early in the day, say at 75° to 80°, so as to have the foliage dry before the sun acts prejudicially upon them. Discontinue shading young plants directly they are able to bear full exposure, but afford shade for a couple of hours at midday after a period of dull weather. Fruiters, with the crowns in close proximity to the glass, will need a slight shade from powerful sun.

The strongest plants that were finally shifted last September will be

showing signs of fruiting, or, if such be not the case, means must be applied to effect it with a view to a supply of early winter fruits. The plants that have made a good growth should be brought together and subjected to a comparative rest for a period of five or six weeks, lowering the bottom heat to 75°, and allowing the top heat to fall to that temperature before closing the house, only employing fire to prevent the heat falling below 60° at night. Do not withhold water entirely, but when a plant becomes dry supply it liberally. The smaller plants that were shifted into the fruiting pots this spring should be kept growing until the pots are well filled with roots, when they may be subjected to similar treatment as advised for those placed in the fruiting pots last autumn, and they will then give a successional supply of fruit.

PEACHES AND NECTARINES.—*Early Forced Houses.*—The fruit of the very early varieties is gathered. Early Louise ripened very little behind Waterloo, and the contrast of these varieties is very pleasing at dessert. They are, perhaps, the best of the very early Peaches, Waterloo having brilliant coloured fruit, while Early Louise has a pink cheek. The wood on which the fruit has been borne should be cut out, and if all superfluous growths are removed, light and air will be admitted to the shoots which are to produce fruit next year. Thoroughly cleanse the trees by washing them with water from the garden engine, and if they have become infested with red spider or thrips add 2 ozs. of soft soap to each gallon of water. Scale also often appears on forced trees and weakens the growths by extracting their juices. In that case add a wineglassful of petroleum to every 4 gallons of the soft soap solution, and let one person syringe into the vessel whilst another applies the mixture to the trees. This will kill all the scale the petroleum comes in contact with; but the insects are rather difficult to reach, as they fasten on the midribs of the leaves as well as on the young wood, therefore syringe, or preferably spray, from opposite directions, keeping the "stuff" well agitated whilst being applied. Maintain the border in a thoroughly moist state. Admit air freely and keep the house as cool as possible. The roof lights should not be removed until the weather becomes settled, but it should be attended to at no distant period with a view to prevent over-development of the buds and early casting of the foliage, or the trees will start the bloom buds when they should be going to rest. The Early York race of Peaches are very prone to over-maturity of the buds, and sometimes have blossoms fully expanded in September.

Second Early Houses.—Hale's Early is a good quality fruit, but it has not the colour of Crimson Galandc, and is liable to over-maturity of the buds, and to cast them like all the Early York race, of which it is only an early form. Admit plenty of air to the ripening fruit by day, and at night also if a prolonged succession of fruit is required. Ripening may also be retarded by a slight shade from powerful sun. No artificial heat will now be necessary except in very dull weather, when it will be necessary, especially where the fruit is ripening, to permit a free circulation of air.

Succession Houses.—There must not be any lack of moisture at the roots or the fruit will be prejudiced in swelling, and premature ripening is often induced by the supply of water being inadequate to the demands of the evaporation taking place from the leaves. This is very considerable in all trees, particularly those that have large leaves, and necessitates copious supplies of water or liquid manure to be given in bright weather. Once a week will not be too often to water inside borders, but in all cases an examination should be made, and when the soil is becoming rather dry, not before, afford a thorough supply. Overcropping is another very frequent cause of premature ripening and lack of quality, as well as size in the fruit. Thin, therefore, in the early stages of swelling so as to increase the size in those that are left for the crop, but do this work gradually, and always have regard to the position of the fruit for receiving light, exposing them from the first as much as possible to the sun, for such have the most colour when ripe, and are the highest in flavour. Thorough cleanliness is essential to the perfection of the current crop and the due provision of buds for next year's fruiting, therefore syringe forcibly so as to expel red spider.

Late Houses.—Thinning the fruit prior to stoning will now be completed. Disbudding and tying in the shoots will also have been attended to. Do not overcrowd the growths, light is the essence of fertility, for without it there is no assimilation of the food elements of moment, and the amount of chlorophyll in the leaves gives in due course the quality to the fruit. Ventilate early and freely on all favourable occasions. Close early in the afternoon, so as to induce the fruit to swell kindly, and syringe in the morning and afternoon when the weather is bright. Aphides are very troublesome this year. Fumigation is the best remedy, and often the most disastrous, because the foliage of Peach and Nectarine trees is easily injured by powerful doses of tobacco smoke. Therefore fumigate moderately, have the foliage dry, and deliver the smoke cool. Mildew cannot withstand forcible syringing, but when it gets a strong hold it should be prevented spreading by dusting flowers of sulphur on the trees and rubbing it well into the white patches that appear on the fruits. Liver of sulphur (sulphide of potassium) at the rate of half an ounce to a gallon of water syringed on the trees is effectual, but it discolours paint. In bad cases the hot-water pipes may be heated to 170°, and lightly coated with a cream formed of sulphur and skim milk, keeping the house closed for about an hour. Usually two or three such dressings are effectual; but in most cases a free use of sulphur over the trees is all that is necessary, for the sulphur resting on the woodwork, trellis, and bark of the trees becomes heated and gives off fumes that destroy the fungus.

THE KITCHEN GARDEN.

ASPARAGUS.—Cutting ought to cease at once on any bed or beds intended to be broken up and forced next winter, the better to enable the plants to grow strongly, form extra good basal buds, and to mature early. There is little likelihood of ever growing Asparagus too large, especially when it is forced, and it is a very short-sighted policy to take all possible out of the roots now simply because this is their last season in the open. On the contrary, they should be assisted by manuring, watering in dry weather, and, as before advised, by being permitted to form an early free growth. It is also most unwise to cut very many shoots from comparatively young beds, and if it can possibly be managed cease cutting from them at once. Because the beds generally were late in producing shoots it does not follow that they may safely be cut from later than usual. Very many early growths were spoilt by frosts just when coming through the ground, and in any case, if many shoots are cut after the middle of June, subsequent growth will be weaker and the plants have too little time to recoup their strength.

YOUNG ASPARAGUS.—Seed sown moderately early and that self sown will have germinated and the seedlings be 4 inches or more in height. At that size they transplant readily in showery weather, even if little or no soil can be moved with them, and being duly replanted in fine, fairly rich ground will, with the assistance of the watering pot, thrive equally as well as those undisturbed. In any case it is not advisable to leave the seedlings crowded together in rows or in large numbers among old plants, and the former should, therefore, be freely thinned out, leaving them not less than 6 inches apart, while those on the beds ought to be largely or wholly removed. The drought has been very prejudicial to newly planted Asparagus, especially where the soil is of a heavy nature and rather lumpy at planting time. Should no soaking rain have fallen lately give these beds a good watering overnight, and the next morning fine down the surface with a rake, this being followed with a mulching of short strawy manure. Some seasons slugs are very troublesome among young Asparagus plants, and unless the latter are protected from them they make but poor progress. A good surfacing of soot and lime well stirred in with a Dutch hoe will do much towards keeping slugs in check, and any that escape should be picked from the Asparagus stems either late in the evening or early in the morning, and destroyed.

SEAKALE.—It is a great mistake to allow either young or old plants to form heads of flower. Any that show ought, ere this, to have been cut and cooked, unblanched tops with the flower head enclosed forming a very excellent dish. All should be gone over now, flower heads being cut off close down to the fleshy stem or root with a view to causing several leafy growths and crowns in due course to follow. Also thin out the young growths on strong cuttings or old roots cut back a short time since, two or three strong crowns on the latter, and one or at the most two on the former, answering much better than several weakly ones. It is not yet too late to make good any blanks by transplanting from where they can be spared, or old forced roots may be used afresh. Seedlings are liable to be preyed on by the Turnip flea and slugs, and should be well coated with soot and lime occasionally. Stir the ground frequently between the rows and keep down weeds. If duly thinned out to about 6 inches apart a useful lot of roots for transplanting next spring may be had, but seedlings, unlike plants obtained by means of root cuttings, are rarely grown to a serviceable size for forcing in one season.

TOMATOES.—South walls are undoubtedly the best positions for these, but seeing that there are not often many suitable spaces between fruit trees available, other sites have also to be tried. Those with a slight y eastern aspect frequently answer remarkably well, these being rather less exposed to rainfall than is the case when south-west aspects are chosen. A very rich root run is not desirable, but it pays well to substitute fresh loam with a little bone meal added for the stale or poor dry soil immediately against garden walls. Where there are moderately light front walls to forcing and other houses, these also might be utilised for Tomato culture. If there is no good soil near these, either remove what there is to a depth of 6 inches or rather more, substituting a fresh loamy compost, or if there is good head room form a raised border 18 inches wide and 12 inches or rather less in depth. Fences or temporary wooden screens answer nearly or quite as well as walls, especially if a coping of some kind or glazed lights can be placed over the plants in showery weather. Keeping the foliage dry is the only preventive of disease. Plants being plentiful dispose them 12 inches apart and confine to a single stem, but if somewhat scarce allow more room and lay in as many strong side shoots as are needed for thinly furnishing the walls or screens. Head room being limited arrange the plants with a view to training obliquely, otherwise train uprightly. Tomatoes sometimes succeed well in the open borders in front of walls, fences or hedges. In this case they may well be planted not less than 2 feet apart each way, and should be supported by strong stakes. In each and every case see that the balls of soil and roots are thoroughly moist when turned out, and also that they be not allowed to become very dry till the roots have struck well out into the fresh soil, after which, if a mulching of decaying manure and leaves is given the plants, they, as far as the roots are concerned, may safely be left to take care of themselves.

VEGETABLE MARROWS.—Private growers as a rule plant these on large heaps of decaying vegetable matter, with a light surfacing of soil only, but though this plan answers well when extra early crops are desired, it is not the best for the later supplies. Plants that grow and spread rapidly and strongly are far from being the most productive, as will be found if a few plants are turned out in the open ground. Very little preparation is needed. Either open a few holes 6 inches deep,

forking some decaying manure freely into the bottom spit and returning the soil thrown out on to the top of this, or else adopt the plan of preparing shallow ridges for them. The latter consists in opening a long trench or trenches 4 feet wide, 6 inches of the best of the top soil being thrown out and returned on to the top of about 1 foot of decaying manure. Either the seed is sown or plants are turned out direct into this, thinning to a distance of or arranging them 3 feet apart, and beyond roughly protecting from late frosts very little more trouble is taken with them, yet they bear surprisingly well till frosts intervene. They succeed best in a sunny sheltered quarter.

RIDGE CUCUMBERS.—These may be successfully grown very much as advised in the case of Vegetable Marrows, but require rather more shelter at the outset, and should also be kept pegged down, otherwise rough winds greatly harm them.

PLANT HOUSES.

Poinsettias.—These should have started well into growth by this time. The old soil should be shaken from the roots and the plants repotted in the same size pots or smaller. They do well in loam, one-seventh of decayed manure, and sand. It is a good plan, after repotting, to stand them on the surface of a slight hotbed in a cool frame. This gives them a good start, and there is no risk of the plants being checked, as they are subjected to cool treatment gradually. Water carefully at first, and close the frame early after dewing the plants over with the syringe. Young plants raised from portions of stem should be well rooted and ready for 4 or 5-inch pots. These may be placed with the general stock after they are potted and will grow together. Give plenty of air during bright warm days to insure firm sturdy growth. Shading may be necessary for a few days after the plants are first repotted until they have made roots, when it should be gradually discontinued and the plants fully exposed to the sun.

Euphorbias.—All the cuttings that are necessary to increase the stock should be either rooted or inserted by this time. Those rooted may be potted singly and started in heat until they are well established. Those that are already established in small pots may be placed in frames with Poinsettias and given the same treatment. The former require smaller pots than the latter. The old stock reserved for cuttings may be cut close back; these soon break into growth in heat, when they may be repotted. Care is needed at first in the watering of these plants until they are well established. They should be grown throughout the summer in cold frames fully exposed to the sun to ripen their wood. If this is accomplished they are certain to flower well.

Justicia flavicoma.—If plants have been cared for since they flowered good cuttings should now be plentiful. These if inserted singly into thumb pots and shaded from the sun will root freely under hand-lights in a close warm house. Directly they are rooted place them into 3-inch pots, and when once established gradually harden them and grow them in cold frames.

Tydaes.—Cuttings of such kinds as Madame Heine should now be rooted. It is a good plan to root them singly in small pots, and remove the lead as soon as they are rooted. This will induce them to branch and make capital plants in 5-inch pots. Cuttings rooted now may be stopped twice, and then allowed to grow. The latest of those that make underground stems may be potted and started into growth.

Begonias.—Those of the manicata type that are well rooted may be placed into 5-inch pots, gradually hardened, and placed into cold frames. These will need keeping close at first, and shading from bright sunshine. Other autumn and winter flowering kinds may be rooted as cuttings can be obtained.

Clerodendron Balfourianum.—Cuttings rooted some time ago, and growing freely in 4-inch pots, should be placed into others 2 inches larger. The plants should be trained under the roof if practicable, so that strong thoroughly ripened growth will be made. This plant does well, and provides handsome decorative material when grown as bushes or small standards. For the first they should be pinched when about 6 inches high, and this should be practised several times during the season. Those for dwarf standards may attain 1 foot or more according to taste before they are pinched. When once they are pinched the treatment should be the same as those required for bushes. The plants should be grown fully exposed to the sun if they are to flower well another season.

THE BEE-KEEPER.

APIARIAN NOTES.

THE WEATHER AND SWARMING.

NOTWITHSTANDING the low temperature of the 21st (35° mean) I was notified of a swarm on that day, and many others have issued since. A few words relative to this subject will perhaps be acceptable to beginners.

STIMULATIVE FEEDING.

This is much dwelt upon by certain persons outside these columns. The plan of slow stimulative feeding is easily under-

stood, but the variation of the time advocated no practical men can possibly understand. At one time February, when the temperature was at 50°, was said to be just right, then it was urged that it should not be begun till March, then April. The latest, however, is April for the south and the end of June for us who are in the far north. Such peculiar teaching may be stimulating for young bee-keepers, but experienced men pass it with a smile. There are obviously times that feeding must be resorted to or the bees would die, and cases where they should not be fed more than is requisite to keep them alive. But in all cases it is better if hives were so conditioned that feeding would be unnecessary.

UNFED BEES.

The stocks alluded to above as having swarmed were never fed in our own apiary, and of all others I have seen, the most advanced stocks are those which have not been fed. Yet, according to stimulating *savants*, if there were no pin-hole feeders there would be no honey. There seems to be great virtue in having a class in show schedules "for the best slow stimulative feeder," but I have yet to find an use for it in the apiary.

If early, strong, and profitable swarms are wanted have good sized hives well stocked with bees, honey, and pollen in September. By that means, with what the bees can gather in spring, feeding will be unnecessary, and the lives of thousands of bees are spared to carry on the internal economy of the hive during weather when no bees but stimulated ones will leave it, and those never to return.

If the foregoing does not fully impress the beginner that stimulating bees is a mistake, then let him put the matter to a practical test, and according to his finding, resolve to work out that system with least risk and labour which proves the most remunerative.

STRONG HIVES.

These mean hives containing a numerous population, such as we aim at when two queens are kept for the ultimate benefit of one hive. Here, again, the beginner may be put to his wit's end by having read something condemning prolific queens, and extolling the great advantage of having strong hives by working them with two queens. Whenever conflicting statements or opinions arise it is best to rely on methods proved to be sound.

In all my experience the more fertile the queens the stronger the hives, consequently the more honey and greater profit. In scarce seasons the strong hives sometimes fare the worst, but it would be foolish to work puny hives anticipating bad seasons.—A LANARKSHIRE BEE-KEEPER.

QUEEN LAYING TWO EGGS IN ONE CELL.

In a stock of bees I discovered on the 21st. inst. that the queen had laid two eggs in many of the cells in two of the bars. As the matter seemed very strange to me I have again examined them to-day (May 23rd) and find that both the eggs in some of the cells in question are passing into the larva state. Can any of your correspondents tell me the cause or what will be the result? Nothing but loss I fear. There were plenty of empty cells in other bars in the hive, and by re-arranging them I find the queen has made use of them by filling them with eggs within the last two days. The two bars which contained the cells with two eggs in were situate near the centre of the hive.—R. M.

TRADE CATALOGUES RECEIVED.

Mr. W. Bull, 536, King's Road, Chelsea, London, S.W.—*New, Rare, and Beautiful Plants and Orchids.*

Messrs. Corry & Co., Limited.—*Sundries and Tobacco Preparations (wholesale.)*

Messrs. Cunningham & Wyllie, 6, West Nile Street, Glasgow.—*Plants and Bulbs.*



• All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Grapes Failing (Outsider).—Your letter arrived one post too late to be satisfactorily answered this week, and we can only thank you for the full and clear statement of the case, which shall have careful attention.

Books (Clericus).—We do not know of "a small book that could be carried in the pocket in which the meanings in English of Latin and Greek names are given," but we publish your want in case any of our readers can help you in the matter. (S. M.).—Dr. Fream's book on "Soils" published by Bell & Sons, may suit you. It is not expensive, the price, we think, being 2s. 6d., but we cannot at the moment lay our hands on the advertisement.

Marechal Niel Rose (Novice).—Your Rose tree may have failed to grow as desired through defective root action or insufficient support. With the roots working freely in good soil the finest of growths follow the cutting down system under the conditions described in our reply to "Inquirer" last week. You do not say whether the plant is in a pot or planted out, or whether it is weak or the reverse in growth. We may say, however, that close pruning after flowering in this season of the year has the effect of causing stronger shoots to issue, and if these are trained thinly, not crushed together in a mass, also kept clean, they afford blooms plentifully another season.

Destroying the White Tomato Fly (C. T. H.).—Some time ago Mr. W. Iggulden stated in these columns that he had found the fumes from sulphur on hot-water pipes cleaned his plants of Aleurodes, and if you turn to the Journal of April 21st of the present year you will find on page 290 a communication from Mr. Allis in which he states the remedy acted almost like magic, and the attacks of the fly were so persistent that he contemplated discontinuing the growth of certain plants, whereas now it is a rarity to find one of the insects in the house. We have not observed the "number of days the eggs take to hatch." Perhaps Messrs. Iggulden and Allis may have done so. However, if you follow their example in banishing the insects the period of incubation will not be of much consequence.

Heuchera sanguinea (J. F. C.).—Unfortunately your experience is a common one. This beautiful plant seems to grow well almost everywhere, but in few gardens does it flower so freely as to justify its reputation. This may be partly due to its having been largely raised from seed, and thus many less floriferous plants would be distributed. That this is not accountable for every instance our own experience is, however, sufficient evidence. Our stock came from a garden where it never flowered well, but in the few years we have grown it our plants have bloomed satisfactorily, and at present we have it throwing up a considerable number of strong flower stems on the lower terrace of a rockery facing almost due south. We have it in very gritty, slightly calcareous, sandy loam, and a frequent supply of water is given. The best flowered plants of *Heuchera sanguinea* we have seen were growing in full sun in the borders of a garden on a granite subsoil and full of granite grit, dry on the surface but moist underneath. We can only recommend the addition of a considerable quantity of gritty matter, and, if not already given, a full supply of moisture in spring and summer. We should be glad to hear if this treatment has a beneficial effect in your case.

Warts on Vine Leaves (A. A.).—The small excrescences on the leaves unquestionably cause functional derangement. Mr. A. F. Barron in his work, *Vines and Vine Culture*, says "the granulation is caused by an extravasation of sap—the outcome of a fit of ill-health on the part of the Vine; and the affection may be caused by a too close warm atmosphere saturated with moisture. A Vine badly affected is long in recovering." Mr. William Thomson in his work, the *Grape Vine*, says:—"I can undertake to produce or prevent this disease—shall I call it?—at any time betwixt the first expansion of the foliage and the stoning of the fruit. A close, warm atmosphere, saturated with moisture, will produce it; whereas a free circulation of air, moderately

charged with moisture, will prevent its appearance. I have seen instances where the leaves were so affected by it that they all cupped themselves up round the edges, the fruit did not swell to much more than half its natural size, and the general progress of the Vine was retarded." The leaves you have sent are not so much affected as to cause the "loss of the crop," but the Grapes cannot be so satisfactory as if the foliage was perfect. There has been an error in management. We have seen the affection follow quickly and seriously after a house has been kept close and the atmosphere moist too long in the morning and the ventilators then thrown open to lower the temperature. Ventilate early and judiciously, as has been repeatedly advised in our "Work for the Week" columns, maintaining a genial atmosphere, but not damping too late at night; also permit as great an extension of lateral growths as can be disposed without materially shading the older leaves, and you may still hope for a fair, if not a full crop of Grapes.

Head and Under Gardeners (A. K.).—We print a portion of your communication in another column, and shall be glad to insert what is suitable from yourself and other probationers. The point to remember in writing to the press is to adhere as closely as possible to the subject in hand, and not to take up a theme with the object of writing on something else. This is what you appear to have done. The major part of your communication is devoted to lecturing head gardeners on their failings. Young men can do very little towards altering the habits of their elders, and if some of the young would-be reformers could do so there would perhaps not be so much real improvement as they imagine. You say there are "few gardeners who study the interests of young men." This reveals the fact that your experience is too limited to enable you to fairly pass judgment on the matter. So far from the number of just, right-minded, and considerate gardeners being "few," we know it is large. If a young man intends to distinguish himself in knowledge and good work he will not be deterred by an apparent lack of sympathy on the part of his elders. He will simply avoid the errors he sees in others, and acquire habits that will help him upwards in the battle of life. Some if not most of the best gardeners of the day were taught by what they once thought hard taskmasters, and few men who have made themselves famous in any calling were the pampered pets of grandmotherly employers in their early probationary days. Those men who succeeded the best are not deterred by obstacles, but make every failure a stepping-stone to a further leap onwards, and in the end attain the object of their hopes. If this little lecture, well intended as all will admit, deters you from trying your hand at writing again it will show that you are lacking in perseverance. We do not, however, assume that such is the case, and you can find a far better theme than commenting on the assumed shortcomings of your elders in the gardening ranks. Even all young men are not paragons, and the weakest will go to the wall sooner or later.

Red Rust on Rose Trees (J. W. H.).—The Rose rust is an early condition of the Rose brand (*Phragmidium mucronatum*), the Rose rust (*Uredo Rosæ*) being the summer form of spore, and the *Phragmidium* the teliospore or autumn form. The species appear on the leaves in the form of small spots, usually very numerous and pale yellow; but impart to the leaf tissues a reddish hue around the spots. As the autumn approaches, or the fungus matures, the spots become dark brown, and the spores then present are larger than those of the "rust" stage. The spores enter the leaf by pushing their germinal tubes through a stomate on the under side of the leaf, and the mycelium grows among, and feeds on, the tissues of the leaf, usually causing the greater part to fall early in autumn, or sooner, by which the plant is much weakened. No cure is known for infested leaves, but the fungus can be prevented and outbreaks localised by the use of carbonate of copper in solution, and it is a capital plan to remove and burn such leaves as become infested so as to prevent the fungus spreading to healthy foliage. The fungicide must be prepared from the precipitated carbonate of copper, dissolving 1 oz. in a quart of liquid ammonia, and added to 25 gallons of water just before application, spraying the bushes upwards so as to reach the under side of the leaves. This should be done in June or earlier, when the leaves are fairly developed. The ammoniacal solution of copper carbonate sometimes blackens the leaves of Roses, Blackberries, and Raspberries, therefore its use must be discriminative, and greater care taken than in using carbonate of copper in suspension, which is equally efficacious provided the copper is well suspended by agitation so as to coat the under side of the leaves evenly, repeating at intervals of about three weeks from the first leaves becoming fully developed. When carbonate of copper is used in suspension an ounce must first be well stirred in a small quantity of water, and the mixture thus formed added to 12½ gallons of water. About three applications are sufficient to prevent attack, or where attack occurs to hinder the spread of the fungus. The carbonate of copper in suspension does not injure the foliage, but if ammoniacal carbonate of copper in solution is used it must be after ascertaining on a few growths the safe strength at which to apply it. We have found much benefit from collecting the fallen leaves and burning them, afterwards dressing the ground with sulphate of iron at the rate of three-quarters of a pound per square rod, mixing the sulphate of iron with sand so as to insure its even distribution, applying in autumn or early spring, and when the ground is wet.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes.

Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (G. F.).—Probably *Eurya latifolia variegata*, but we cannot be certain from a solitary and not very good leaf without a line of information respecting the character of the plant. We are glad your change is satisfactory. A box has been received from "R. F." addressed to Mr. E. H. May, and without the paper in which a reply is expected being indicated. Moreover, the flower was sent in a loose box without damp moss or any other substance being employed to insure its arriving in a fresh condition. If this meets the eye of "R. F." perhaps he will write again repairing the above omissions. (Mace).—The botanical name of the Bird Cherry of which you send a spray is *Prunus Padus*, the correct name of the herb has not yet been satisfactorily determined. (G. W.).—*Narcissus poeticus plenus*.

COVENT GARDEN MARKET.—JUNE 1ST.

BUSINESS brisk, with prices firmer.

FRUIT.			
	s.	d.	s. d.
Apples, ½-sieve	1	0	to 5 0
Apples, Canada and Nova Scotia, per barrel ..	12	0	20 0
Apples, Tasmanian, per case	7	0	12 0
Grapes, New, per lb. ..	2	0	to 4 0
Lemons, case	10	0	15 0
Oranges, per 100	4	0	9 0
St. Michael Pines, each ..	3	0	6 0
Strawberries, per lb. ..	1	0	4 0

VEGETABLES.

	s.	d.	s. d.
Beans, Kidney, per lb. ..	0	9	to 1 0
Beet, Red, dozen	1	0	0 0
Carrots, bunch	0	4	0 0
Cauliflowers, dozen	2	0	3 0
Celery, bundle	1	0	1 3
Coleworts, dozen bunches ..	2	0	4 0
Cucumbers, dozen	2	6	4 6
Endive, dozen	1	3	1 6
Herbs, bunch	0	3	0 0
Leeks, bunch	0	2	0 0
Lettuce, dozen	0	0	1 6
Mushrooms, punnet	1	6	2 0
Mustard and Cress, punnet ..	0	2	to 0 0
Onions, bunch	0	3	0 5
Parsley, dozen bunches ..	2	0	3 0
Parsnips, dozen	1	0	0 0
Potatoes, per cwt.	2	0	3 0
Salsify, bundle	1	0	1 6
Scorzonera, bundle	1	6	0 0
Seakale, per basket	1	6	1 9
Shallots, per lb.	0	3	0 0
Spinach, bushel	3	0	3 6
Tomatoes, per lb.	0	9	1 0
Turnips, bunch	0	0	0 0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s. d.
Arum Lilies, 12 blooms ..	2	0	to 4 0
Bluebells, dozen bunches ..	0	9	1 0
Bouvardias, bunch	0	6	1 0
Carnations, 12 blooms ..	1	0	3 0
Carnations, Malmesbury, 12 blooms	2	0	6 0
Cineraria, dozen bunches ..	6	0	9 0
Cowslip, dozen bunches ..	1	0	1 6
Daffodils (single), doz. bunch ..	1	6	6 0
Eucharis, dozen	2	6	5 0
Euphorbia jacinthiflora dozen sprays	2	0	3 0
Freesia, dozen bunches ..	2	0	4 0
Gardenias, per dozen	1	6	4 0
Lilium longiflorum 12 blooms	2	6	4 0
Lilium (various) dozen blooms	1	0	3 0
Lily of Valley, doz. sprays ..	0	6	0 10
" doz. bunches	3	0	9 0
"Maidenhair" Fern, dozen bunches	4	0	8 0
Marguerites, 12 bunches ..	2	0	4 0
Mignonette, 12 bunches ..	2	0	6 0
Myosotis or Forget-me-not, dozen bunches	2	0	to 4 0
Narciss (various), Scilly dozen bunches	2	0	4 0
Pæonies, dozen blooms ..	0	6	1 6
Pansies, dozen bunches ..	1	0	2 0
Pelargoniums, 12 bunches ..	6	0	9 0
" scarlet, 12 bunches ..	4	0	6 0
Polyanthus, dozen bunches ..	1	0	2 0
Primroses, dozen bunches ..	0	6	0 9
Primula (double) 12 sprays ..	0	6	0 9
Orchids, per dozen blooms ..	2	0	8 0
Roses (indoor), dozen ..	0	9	2 0
" Red, per doz. blooms ..	2	0	4 0
" Tea, white, dozen ..	1	0	3 0
" Yellow, dozen	2	0	4 0
Spiræa, dozen bunches ..	4	0	6 0
Tuberose, 12 blooms ..	0	6	1 0
Tulips, dozen bunches ..	2	0	6 0
White Lilac (French) per bunch	4	0	5 0
Violet Parme, per bunch ..	2	6	3 6
Violet, English, doz. bunch ..	1	0	1 6
Wallflowers, dozen bunches ..	2	0	4 0

PLANTS IN POTS.

	s.	d.	s. d.
Arbor Vitæ (golden) dozen ..	6	0	to 12 0
Arum Lilies, per dozen ..	6	0	9 0
Azalea, per plant	2	0	3 0
Calceolarias, per dozen ..	4	0	8 0
Cineraria, per dozen ..	4	0	8 0
Cupressus, large plants, each ..	3	0	5 0
Dracæna terminalis, dozen ..	24	0	42 0
" viridis, dozen	12	0	24 0
Erica various, per dozen ..	12	0	24 0
Euonymus, var., dozen ..	6	0	18 0
Evergreens, in var., dozen ..	6	0	24 0
Ferns, in variety, dozen ..	4	0	18 0
" (small) per hundred ..	8	0	12 0
Ficus elastica, each	1	6	5 0
Foliage plants, var., each ..	2	0	10 0
Fuchsia, per dozen	6	0	12 0
Genista, per dozen	6	0	to 10 0
Geraniums, Ivy	6	0	9 0
Lilac, each	2	0	3 6
Lobelia, per dozen	4	0	6 0
Lycopodiums, per dozen ..	3	0	4 0
Marguerite Daisy, dozen ..	6	0	12 0
Mignonette, per dozen ..	6	0	10 0
Musk, per dozen	3	0	6 0
Myrtles, dozen	6	0	9 0
Palms, in var., each	1	0	15 0
" (specimens)	21	0	63 0
Pelargoniums, scarlet, doz. ..	4	0	6 0
" per dozen	9	0	18 0
Rhodanthus, per dozen ..	6	0	8 0
Saxifraga pyramidalis ..	1	6	2 0
Spiræa, per dozen	8	0	12 0

Bedding Plants in variety in pots and in boxes.



PROFITABLE CATTLE.

THIS is an inclusive term which comprises cattle of all ages, from a calf up to the finished steer of thirty months, at which age well-bred animals are now usually sent to the butcher. Brisk

work as this evidently is, it is not always profitable, and the point that we wish to elucidate is that losses upon fattening beasts arise from mismanagement more frequently than from adverse markets. To begin with, pure-bred cattle have a decided advantage over mongrel-bred animals, the latter requiring twice as much food and twice as much time as the former to become really fat. When both are ripe for the butcher it is the small-boned, compact beast, rather than the large-boned coarse animal which obtains the higher price at sale or market. Go to a good auction mart, and the truth of this statement will be found to have plenty of illustration, yet well-bred beasts brought to early maturity are not always profitable. The reason of this is usually mismanagement both of the cattle and of pasture. Extravagant outlay for forcing food by no means implies feeding to profit. There is now no doubt whatever that an immense amount of money has been lost over the stall-feeding of matured beasts in winter.

Recently published records of the feeding from birth to slaughter at thirty-four months of a grade Devon steer afford a useful lesson in this matter to all graziers, and they are positively startling to those who persist in clinging to old custom without regard to profit or loss. All the food given to this steer was carefully weighed and measured, roots being valued at 10s. per ton, Cabbage and cut grass at 15s. per ton, litter at 20s. per ton, and cake, hay, and bran at market price. The nominal value of the roots was estimated at 4s. per ton, that of the litter at half its cost, that of the hay at 15s. per ton, and that of the cake and bran at one-third the market price. The net result when the steer was sold was a loss of £7 16s. 9d., and yet it had made an average daily gain of a fraction over 1½ lb., which goes to show that winter stall feeding is unprofitable, no matter how well the beast is bred.

The daily average gain of 1½ lb. in weight is precisely what we have come to expect in a well-bred animal. The outlay should be considerably less than 6s. per week; yet the Devon steer cost more than twice that amount per week. That was an example of extravagance in the past which, it is hoped, will lead to better management in the future. What is wanted is well-bred, well-reared calves, that are kept in full condition from the first, are never subjected to ridiculous extremes, but are kept growing steadily, are well sheltered from cold, from filth and impurity of all kinds; or, in other words, kindly treatment, protection, clean buildings, clean dry litter, wholesome nourishing food. As forward yearlings, the following spring they are strong, sturdy animals, admirably calculated to derive all possible advantage from a summer's grazing on good pasture. But even this must be done with judgment; nothing must be left to chance. If the summer proves cold and wet they must have shelter and a fair amount of dry food; they must also be brought into the yards early rather than late in autumn—gradually brought in and accustomed to winter quarters and winter food. Our especial aim, then, is to have them "fresh"—i.e., robust and full of flesh at turning-out time next spring, when they are about two years old. Then, if they are to prove profitable, we must have some really good pasture to turn them to, for they require six months' first-class grazing to finish them. Life in the yards is over for them if only we have got our pasture into as good condition as that of the beasts. Why not? Surely nothing can be more simple or more certain than the bringing into and keeping in high condition of all permanent pasture. It ought not to be so to our readers, for the method of it has been set before them often enough.

We earnestly hope that this article may prove a word to the wise now, when calves are so often turned out to rough it, and fall off so seriously in condition. Any feeding that is done is often entrusted to a boy without any actual supervision. His familiar cry of "Bully! bully!" brings the calves with a run across the home close. They have their ration of milk, and that is all. Out they are, and out they must be till autumn, when

persistent coughing so often tells of husk, and they are driven to a hovel with the idea—very vague and undefined in meaning or conception—that something must be done. There are losses then, there generally are, and so it goes on year after year. We are not without hope that a better state of things may yet be brought about, that graziers may be induced to see their interest in a change in cattle management after they come to recognise the possibility of improvement. That is the point after all, if only it can be managed the rest will follow. We have got on with dairy training, let us hope that rearing and feeding cattle for profit may also be thought worthy of attention, and also be thought capable of improvement, as dairy practice has proved to be.

WORK ON THE HOME FARM.

As we write this note in the last week of May sheep-washing has become general in what may be termed safe weather for this work, for the days are hot and the nights warm. The flies will therefore soon be troublesome, and it will be well to get the sheep-shearing done at once when the wool is in condition. After the shearing, in the course of a week or fortnight, if any wounds inflicted by the shears are quite healed, dip sheep and lambs in Cooper's dip, because lambs will probably have taken some ticks from the ewe. This makes them free from parasites for some time to come—say three months, and also keeps off fly attacks for awhile. Only be sure and separate ewes and lambs before the dipping, and long enough afterwards to prevent the lambs from taking poison when sucking. To be quite safe we would have the wool sufficiently dry to feel certain there is no possibility of poisonous moisture trickling down to the udder, and also well sponge the udder with warm water before letting in the lambs. It is only late lambs that need be kept with the ewes longer, early ones may just as well be away, and dipping time is a good one for the weaning. Ewes intended for breeding next season then have full three months to recover condition, for however well managed there must be some exhaustion from suckling a big lamb, often a pair of them.

June and September are the best months for sheep-dipping, which is to be regarded as an indispensable necessity twice a year; in early summer for the reasons indicated, and in early autumn to destroy ticks before the cold weather sets in. This ought never to be neglected, both for reasons of humanity and economy. With a lot of ticks established in the wool, living upon the poor animal's blood, to get which it fastens upon the skin, the state of irritation must be incessant and terrible. At times the sheep appear to be almost frantic, rubbing themselves vigorously against any hard substance available, while the brutal shepherd goes carelessly about, perchance complaining of the ravages of foot-rot in the flock, which it is equally in his power to keep under. Such a man ought to be sent about his business; but, in all seriousness, we may inquire what his master can have been about to suffer such negligence? Self-interest, to speak of nothing else, ought to induce one to see that each important thing affecting the health and comfort of the flock has attention in due season. See also that every case of foot-rot is treated with gentleness and thoroughness. If there are several cases withdraw the patients from the flock, and have them near the home-stead, where they can have daily attention.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	May.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 22	30.024	57.8	52.2	N.E.	52.7	66.7	44.8	114.6	38.8	—
Monday	.. 23	29.936	61.8	54.2	N.	52.8	72.4	47.1	119.0	40.0	—
Tuesday	.. 24	29.947	64.2	56.7	S.	53.7	74.3	52.1	119.8	45.3	0.019
Wednesday	25	29.756	63.8	60.7	S.	55.0	79.6	54.4	123.9	45.4	0.736
Thursday	.. 26	29.848	59.6	58.7	N.E.	56.2	76.0	53.4	108.9	49.1	0.300
Friday	.. 27	29.868	69.6	62.2	S W.	56.8	76.9	53.7	110.7	55.9	—
Saturday	.. 28	29.746	76.4	61.3	E.	57.3	82.2	59.2	126.1	53.6	—
		29.875	65.5	58.0		54.9	75.4	53.2	117.6	46.6	1.055

REMARKS.

- 22nd.—Occasional bright sun, but generally hazy and thundery looking; cloudy in afternoon, and a few large spots of rain about 5 P.M.
 23rd.—Sunny early, and occasional sunny intervals during the day, but a good deal of cloud.
 24th.—Generally sunny and warm, but a good deal of cloud about noon.
 25th.—A little thunder and rain about 7.30 A.M., and cloudy, and rather close till about 11 A.M., then generally sunny. Much lightning and a little thunder from 9.30 P.M. to midnight.
 26th.—Heavy thunderstorm from 5 to 6 A.M., with 0.30 inch of rain in about fifteen minutes, and 0.73 inch up to 9 A.M.; sunny from 10 A.M. to 1 P.M.; generally cloudy and threatening in afternoon, with occasional spots of rain.
 27th.—Heavy rain from 0 A.M. to 1 A.M.; sunny at times in day, but generally overcast.
 28th.—Bright, breezy, and hot; a rapid fall of temperature after 4 P.M.
 A very warm summer week, with several distant thunderstorms on the 25th and 26th.—G. J. SYMONS.



I QUITE agree with "C. C." that shrubberies in the majority of gardens are not what they ought to be. Those who are responsible for the arrangement of the plants pay too much attention to the evergreen kinds, which are beautiful in winter no doubt, but are often planted to the exclusion of many charming and useful flowering shrubs of a deciduous character. When this takes place I think it is time to protest against the scanty appearance of the shrubberies during the spring and early summer months. All gardens ought to possess a collection of hardy flowering trees, no matter how small they may be. At the seasons indicated there is no pleasure to be derived from a walk round the shrubbery borders if little else but evergreens are planted, because these are then changing in appearance, either by making new growth, which alters their colour very much, or by flowering, which certainly gives variety, but is not sufficiently interesting to warrant their inclusion to such an extent as to debar many flowering kinds that are real objects of beauty when planted and treated properly.

What I call the "dot" system of planting shrubberies with evergreen or flowering plants is too much in vogue. A much better plan is to plant more in a mass, so as to give a brighter effect when the trees are in bloom. Take, for instance, double-flowering Gorse, which "C. C." does not name. The effect of a dozen plants in a mass is much better than that of the same number dotted about singly. The same remark applies to evergreen shrubs. Three trees of the common *Juniperus chinensis* are far more effective if grouped than standing singly. Some persons may perhaps regard my remarks upon this subject as quite out of season, but now is the time to take note of irregularities and to make suggestions for alterations in the autumn. The present affords many more opportunities of judging whether the trees and shrubs are in the right position or not than can be had later on.

It is wonderful how many kinds of flowering trees and shrubs will annually give an abundant crop of blossoms with a minimum amount of attention in the way of either top-dressing or manuring when the branches are kept thin. Immunity from overcrowding is the great point in prolonging their floriferousness year after year. If overcrowding take place the crop of flower will soon get thin. Of course something depends upon the kind of soil in which the trees are growing. Perhaps that which is light and sandy will not give the same results as that which is of an opposite character, heavy and retentive, as in my case. I know that a great number of the flowering trees and shrubs here did not receive a scrap of manure when they were planted a dozen years since, nor have they had any during that time, and still they flourish. This surely is a point in favour of planting flowering trees and shrubs more extensively.

I should like to supplement these remarks by calling attention to a few kinds in addition to those named by "C. C." *Magnolia purpurea* is a capital sort to succeed conspicua; the flowers are a little larger, and the purple tint on the petals renders it showy. *M. Soulangeana* is very similar in colour, but still later in opening its blossoms. Amongst the Laburnums quoted alpinum—the Scotch variety—is perhaps the most graceful. The drooping chain-like flowers are not so numerous as the others, but their natural elegance, combined with the deeper hue of the foliage, is more

appreciated than any other, especially when standing alone on grass. The habit of this variety is more tree-like than any of them. In addition to *Amelanchier Botryapium*, which is generally known as the Snowy Mespilus, *A. florida* is well worthy of a position. We have several tall standards of it growing amongst and over the top of dark evergreens, and the contrast between their foliage and the pure white freely produced blossoms of the Mespilus during May is very fine. The Siberian Crab deserves far more attention than it at present receives. We have a tree growing on grass 40 feet high and as much in diameter; the lower branches sweep the ground, and it is one mass of bloom over every part of the tree. The inside branches are as thickly clothed as the outer. The worst enemy this and the Almonds have is the bullfinch, which is exceedingly partial to the buds when swelling. When this cause of complaint is removed the Siberian Crab is a noble example of our spring flowering trees.

The Judas Tree is but seldom seen; its purple flowers, which are produced from the main stem and branches apparently without any previous growth, are curious and pleasing. We grow the *Weigela rosea* and *amabilis* as a hedge on the top of a bank facing north. On the southern side there is a tall Laurel hedge, which provides an agreeable contrast to the freely produced blossoms of the *Weigela*. The latter are the result of inducing vigorous shoots annually by removing many of those which are weak from the centre of the bushes. *Cydonia japonica* we grow as a hedge, and in this way it looks quite at its best; the flowers are brought nearer together, giving a fuller effect. For the shrubbery Lilacs are indispensable. Charles X. deserves a foremost place, the growth being strong and upright it is well fitted for mixing with other plants. Keep the wood thin and plenty of flowers will be had. The common Jew's Mallow, *Kerria japonica*, is a true cottager's plant. In this locality a quantity of it is grown against the front wall of cottages, where it succeeds better than elsewhere. The warmth from the wall ripens the wood thoroughly, producing abundance of bloom.

A shrub seldom seen is *Buddlea globosa*, the orange-coloured ball-like flowers of which smell strongly of honey, and are freely produced in June. Unfortunately the last two winters have played sad havoc with both large and small plants, but it is easily raised from cuttings, and grows so rapidly that another stock can quickly be raised. The Siberian Pea Tree, *Caragana arborescens pendula*, is not often met with. Its yellow Pea-like blossoms are showy during July. The Bird Cherry, *Cerasus Padus*, grew so fast with us and required so much room that the plants had to be relegated to a position on the margin of a pond in the park, where they make a great show when in flower. To enumerate all the varieties of the *Spiraea* family would require a considerable amount of space. Two varieties worth adding to those already quoted are *S. prunifolia* fl.-pl., the small rosette-like blossoms of which are thickly set on arching branches, and *S. arifolia*, which produces its long plume-like flowers in July. The latter is amenable to two forms of treatment. It will either grow as a tall bush, or can be annually cut down to within 3 feet of the ground.

The *Berberis* family provides much that is useful for our shrubbery borders. *B. Beali*, with its massive foliage, bears richly perfumed and showy blossoms freely during February. *B. Darwini* as a bush in the shrubbery, or what is perhaps more effective, growing close by the waterside, is very fine. It may not be generally known that this orange-coloured Barberry makes a capital hedge; we have two fully 50 yards long. The common form of *B. aquifolium* is much more useful for planting under tall forest trees than many think. A mass of it 12 feet square is planted on a sloping bank, out of which are growing three bushes of Golden Queen Holly, which give an agreeable effect.

One more word, and that is in favour of those princely varieties of the Mock Orange *Gordianus* and *grandiflorus*, which are only

to be determined readily in one way—perfume ; the former is scentless. Both are of upright growth, the flowers are racemose, and much larger than the type in every way.—E. MOLYNEUX.

GLOBE FLOWERS.

THE great yellow globes of the *Trollius* are attractive either growing wild or in gardens, and they help the mixed border just at a time when aid is wanted, when something conspicuous and vigorous in growth is required to overcome the untidy substratum of the leaves of the spring bulbs, which are anything but ornamental during the latter half of May, but which have to be endured for all that. *Trollius* is a name coined on a Latin model by mediæval herbalists from a German base, and signifies Globe Flower. The name occurs in Gerard, who gives also Locker-gowlans as a popular title, this being no doubt a corruption of the Scotch Lucken-gowan, or Cabbage Daisies. Another old English name for the plant is "Bolts"—that is, round balls. The native *Trollius* has flowers which can fairly be called globes, but some of the foreign species have less right to the title. The American *Trollius* for instance has an open spreading flower, and a poor shabby flower too (see "Botanical Magazine," tab. 1988), and is more in place in a botanical garden than in an ornamental flower border.

The genus *Trollius* may be broadly divided into three—the European Globe Flower (*T. europæus*) with true globes, nearly or quite closed by the overlapping sepals, yellow in colour ; the Asiatic (*T. asiaticus*), with a more expanded flower of an orange colour ; and the American (*T. americanus*) described above, though the name is often wrongly given to varieties of *T. europæus*. Botanists, however, have recognised eight or nine true species, and we find besides many named varieties in nursery catalogues. The European kind, which is common as a wild plant in North Wales and the North of England, has been enlarged and improved by cultivation, and we find varieties growing 3 feet high, and with flowers nearly 3 inches across. The largest flowers I have belong to a variety in which the globe is considerably flattened, the foliage much cut, and the whole plant of low stature. Another kind is called *T. napellifolius* by nurserymen, and is perhaps the largest form of *T. europæus*.

The flowers of the typical *T. asiaticus* are smaller than those of the cultivated *europæus* ; the sepals, which look like petals, are pale orange, and the true petals, which are short and narrow, and grow amongst the stamens, are of a deeper orange, and give their tint to the whole flower. Some very fine varieties of this species, which belongs more especially to central and northern Asia, have recently been introduced by those excellent pioneers of botanical science, the Russians, and distributed from the St. Petersburg Imperial Gardens by the late Dr. Regel. Another very fine form has been longer in cultivation, under the name of *T. Fortunei* or "*T. japonicus flore-pleno*." It is probably a horticultural development of Japan or China, and where it does well is the handsomest of all the genus. Unfortunately it is not hardy on cold soils, and I have tried in vain to make it ornamental in Cheshire.

Three years ago I received some seedling plants of a *Trollius* from Mr. Thompson of Ipswich, the flowers of which are of a very rich deep orange, while the growth is robust, and even in this spring of late frosts has continued uninjured. I believe Regel called this var. *aurantiacus*, and it may perhaps be the same as Ledebour figured and described in his "*Flora Altaica*" eighty years ago. Some of these Asiatic varieties, however, seem very close to each other, and E. Boissier in his "*Flora Orientalis*" describes two Caucasian species, which he says are very like each other, and come near some forms of *europæus*. Perhaps it is one of these which Mr. Ware exhibited last year at the Regent's Park Show as *T. caucasicus*, and which was much admired. Sir J. Hooker in his "*Flora of British India*" describes two other species, distinct by their dwarf growth, which they lose in gardens if those in cultivation under the names are true to kind. I am sorry to say, however, that names of *Trollius* amongst nurserymen are by no means consistent, some excuse for this being afforded by the habit which this plant has in gardens of departing from its natural characters.

To cultivate the Globe Flowers successfully the soil must be rich and retentive, the situation sheltered and not fully exposed to scorching sun. Their growth is somewhat slow, and if a small piece grown in a pot is planted out it will be two or three years in becoming a fine plant. Even when divided and transplanted a large piece takes more than one year to establish itself, so as to show its best qualities. When dry east winds prevail through March and April the plants of *Trollius* should be well mulched with rich soil, and the Asiatic varieties will be found more impatient

of drought than the European. The most satisfactory way of getting well-established plants is to grow them from seed. This should, of course, be obtained from the best kinds, and, as in the case of all this tribe of spring flowers, should be sown as soon as ripe, when it may be expected to grow the following spring, and flower the second spring. The different species seem readily to form crosses, and good developments, both in size and colour, may be expected from them. Though I have many plants, which are evidently hybrids between the European and the Asiatic kinds, there has been as yet no remarkable improvement in this garden ; but I look upon the whole genus as one well worth attention in suitable soils.

Besides those before mentioned, I may add two very fine forms received from nurseries, called *T. Demayanus* and *T. Gibsoni* (the last flowering late), but I cannot verify the names.—C. WOLLEY DOD, *Edge Hall, Malpas*.

THE CULTIVATION OF LATE BROCCOLI.

MR. CHINNERY'S remarks under the above heading in the *Journal* for May 19th (page 371) cannot fail to be of interest to many gardeners at the present time, and as we are generally very successful with this important crop I gladly state what I believe to be the reason for it. Some five or six years ago someone was writing in the *Journal* (I believe Mr. Iggulden) advocating more exposed situations for all kinds of winter greens, and every winter since I have been more and more convinced of the soundness of his remarks. I think if gardeners could only grow Broccoli where they would not be shut in by high walls or sheltered in any way we should hear of less failures. My plan is to sow the seed very thinly some time in April in a bed fully exposed and away from trees or walls, and plant out before the seedlings become crowded on a quarter that is not highly manured. We allow them as much room as possible (usually about 2½ feet each way) especially the late varieties ; they are kept clear of weeds, so that the plants may have all the light and air possible. I should have said our kitchen garden slopes sharply to the south and is without any protection from that quarter or the south-west. I never protect them in winter in any way or heel them over, and although of course their outer leaves will leave the tips withered by cold winds we rarely have any killed by the frost splitting the stems. The three latest varieties I grow are Leamington, with Sutton's Standwell and Late Queen. We have just finished cutting Standwell, and I hope this year to have Late Queen well into June.

I attribute our success principally to the hardy manner in which the plants are grown from the first, and to the exposed position of the garden. If I was obliged to plant in sheltered places I should sow the seed in May, and plant out on ground that had not been freshly dug. The winter of 1890 and 1891 was unusually severe here as elsewhere, and as an instance of the effects of frost on plants in different parts of the same garden I may mention I had several rows of Black-seeded Bath Cos Lettuce planted on an open quarter, and did not lose one by the severe weather, while those left in the seed bed, which happened to be in a sheltered position, were all killed. We are at the present time cutting Commodore Nutt Lettuce from plants put out in the open ground last autumn, and these have never had the slightest protection, although the weather here this winter has been severe enough to considerably damage Yews and Rhododendrons.

Other instances I could mention which tend to prove (to me at least) that if we wish for Broccoli or any other crop of the kind to stand the weather, the plants must not be tenderly reared or accommodated with too rich a soil.—C. O. SJOQUIST, *The High Beeches, Handcross, Sussex*.



TWO NEW ODONTOGLOSSUMS.

AMONGST the many attractive novelties in Messrs. Sander and Co.'s collection of Orchids at the Temple Show were the two beautiful *Odontoglossums* *Louryanum* and *crispum* Sanderæ. The former (fig. 74) is a species of considerable beauty, and has presumably been named in honour of Mons. Loury of the *Jardin des Plantes*, Paris. It is not a brilliantly coloured flower, but one in which there is an almost perfect harmony of hues, being a combination of light brown, yellow and white. The sepals are

light brown tipped with yellow, the petals similarly coloured, but with a few blotches of white. The basal area of the lip is pure white margined with light brown, the apical portion light brown. A first-class certificate was awarded. In *O. crispum Sanderæ* (fig. 76, see page 441) we have a most distinct form of a familiar species. It needs no minute description, for its value lies in the remarkably heavy blotching, and it need only be said that the sepals, petals, and lip are nearly covered with brown blotches and spots to indicate the distinctive character of the variety. It is one of the most richly coloured forms of *O. crispum* yet met with, and must be classed as one of the finest varieties of that popular type. A first-class certificate was awarded to it also.

IMPORTED ORCHIDS.

BEGINNERS would do well to exercise care in the purchase of these plants. Two points are worth attention—namely, the time of year they arrive, and the condition of the plants after they have arrived. I have had to treat plants that have arrived at nearly all seasons of the year, but I have found none so easy to manage as those that have been collected during the period of rest and arrive in this country during the early months of the year. February, March, and April cannot be surpassed for importing Orchids in a general way. When the plants are collected at the right time, and properly packed in perfectly dry material in what may be termed air-tight cases, they invariably arrive in good condition. When full of sap, packed loosely or moderately so, and holes are left in the cases, the air enters and aids fermentation, the result being that the plants arrive in the most unsatisfactory condition. Last year we received 700 plants at the wrong season and packed in the most careless manner, and only six were worth trying to bring round. This small remnant will take one year longer than they should have done to produce flowering pseudo-bulbs worthy of the name.

The importance of receiving plants at the proper season of the year and in good condition is manifest. My advice is to select plants that have not started into growth on the journey. It is much better to wait for another importation than to start with plants in a half dead condition, for they rarely do satisfactorily. In the selection of these plants those that have started on the journey, especially *Cattleyas*, are very liable to decay when exposed and the plants are subjected to heat and moisture. Select plants that have good healthy foliage of evergreen kinds and plump but dormant leads. Plants in this condition rarely fail to do well if they are given proper treatment. We may just glance at *Cattleyas*, *Dendrobiums*, and *Odontoglossums*, and then some idea of the methods of treating these plants may be gained.

Cattleyas that arrive in the condition described should have all decayed portions cut away with a sharp knife. These if left upon the plants are very liable to cause other portions of the plants to decay. The plants should then be thoroughly washed in tepid water in which a little softsoap has been dissolved, and not only should the leaves and pseudo-bulbs be washed, but the rhizomes also, for on these scale is often left, and afterwards proves a source of trouble. Decaying roots can be cut away before this washing takes place, and then the plants may be spread out to dry again. We invariably lay the plants in a vinery at work where the temperature ranges about 55° to 60°. If possible a position is selected where the supply of moisture can be regulated. A trelliswork covering the border is a good place for them, but it is not absolutely necessary, for I have frequently had to start them in plant and Orchid houses. The plants at first are only given the moisture of the house, then they are syringed once on fine days until they plump up and display signs of starting. When once the leads are moving the plants should be placed in pots or pans. A stake should be placed in the centre of the pots and secured in position by means of the crocks. The pots or pans should be filled to within 1 inch of the rim. The plants can then be secured to the stake and practically held into position by lumps of charcoal. Syringing is practised as before, and the crocks and charcoal kept moist by pouring tepid water into them.

The plants are not long before they emit roots, when a few pieces of the crocks and charcoal may be removed, and the space filled in with peat in lumps, pieces of charcoal and sphagnum moss towards the surface between the lumps of peat. After the plants are potted they are placed in the *Cattleya* house by themselves, and given the same treatment as established plants expect in the supply of water, which should be given with care. Plants in the condition described frequently make strong flowering pseudo-bulbs by the end of the season, and produce abundance of roots. Many of the plants root so freely that they are ready for larger pots or pans the following season. Even the weakest of the plants are ready for potting the second season.

Dendrobiums of various kinds that arrive plump and in a dormant condition do not give much trouble to establish; even those that have made an inch or so of growth in the packing cases are

not difficult to manage. The only difference in treatment is that the supply of moisture must be administered with caution, and strong light must be kept from the plants for some time. We invariably suspend these plants from the roof of a vinery the same as described for *Cattleyas*, or in some other suitable structure. During the earlier months of the year even those that are dormant are not long before they start into growth. Such kinds as *Wardianum*, *crassinode*, and others start much quicker than *chrysotoxum*, *densiflorum*, and others of the same style of growth. When once the plants start into growth they are placed in pots, baskets, or pans for suspending from the roof. In this operation it is wise to use pots, pans, and baskets of as small a size as possible. This prevents the placing of too much material about the plants in potting them. The latter is a great mistake, and the cause of failure in many cases. We find it best at first to fill the pans, pots, or baskets nearly full with crocks, and use only very little peat and moss. We prefer potting or basketing the plants the following season to giving them too much rooting material at the first.

One other caution is necessary. *Dendrobiums* often flower profusely after they arrive, and if allowed to do so they weaken



FIG. 74.—ODONTOGLOSSUM LOURYANUM.

the plants to such an extent that they rarely do much good afterwards. I have been tempted to allow *Devonianum* to produce as many flowers as they would, and the consequence has been they have failed completely afterwards. Very often these are cheap enough to be flowered, and then thrown away, the same as *Hyacinths*; but we are now considering the establishment of the plants for future use. It is a wise plan to rub off the flowers directly they appear. This seems a sacrifice, but it is not the case if the well-being of the plant is considered. They need very careful supplies of water at first until the formation of a good quantity of active roots has taken place, when the supply may be liberal. Some of the plants enjoy more shade than others, but that must be passed for the present.

Odontoglossums need different treatment and cooler conditions in which to start. If they are dormant they are washed the same as advised, and are then laid on a mat, partially shaded, where the temperature ranges about 50°. If we have to deal with good masses of *O. Rossi majus* we invariably pull them to pieces so as to remove any dead or decaying material from amongst them; they are then thoroughly washed. We are particular about this matter, because we have introduced insect pests into our houses by carelessness. This variety does better if broken up than if large crowded clusters are secured on blocks or placed on the surface of pans. We have found it do best when suspended from the roof in pans 2 inches in depth, and 5 or 6 inches in diameter. The plants require very little soil, because in their native habitat they are found growing upon trees. These, as well as other varieties,

have only the moisture of the atmosphere at first, but it is increased after the first week or ten days by syringing them occasionally. When they display signs of starting they are panned and potted. About half a dozen pieces with leads of such kinds as *O. Rossi majus* are placed in pans in a compost of peat fibre and bits of charcoal, sphagnum moss being sparingly used on the surface. Single pieces of varieties of similar habit of growth to *O. crispum* are placed into 2-inch pots, the pots being one-third full of drainage and the plants slightly elevated, the material used for them being peat. The plants are then stood pot to pot until they begin to grow, the atmosphere is kept moist, and the syringe freely used amongst the pots. Care should be taken not to give too much water until root-action has commenced. Those with healthy plump pseudo-bulbs will quickly make capital growths and abundance of roots.

Overpotting must be carefully avoided; it is better to leave the plants in the small pots until they are thoroughly established. *O. vexillarium* is treated only slightly differently, being potted in equal portions of peat fibre and sphagnum with moss on the surface. After potting the whole are grown with established plants.—ORCHID GROWER.

STRAWBERRIES AFTER FORCING.

By far the greater portion of the Strawberries that are fruited in pots are thrown away as being no longer of any real service. There was a time, however, when they were much sought after by owners of small gardens and others, who found that if properly treated they would yield an extraordinary crop of fruit in the open during the following season. Unfortunately this superior productiveness was not sustained in after years, in fact in most cases it did not pay to retain them any longer. This comparatively early collapse of the plants may not have been the sole cause of the discontinuance of planting-out forced pot Strawberries, but it had much to do with it. I am referring especially to such old favourites as Sir Joseph Paxton, President, Sir C. Napier, and British Queen, none of which can be depended upon to fruit a second time in one season, whereas Keens' Seedling, if forced rather early, would do so, and so also would Black Prince. These varieties have of late years been largely superseded by Vicomtesse Héricart de Thury, Princess of Prussia, Noble, and La Grosse Sucrée, and the three first named, at any rate, are so exceptionally productive that they will fruit most abundantly twice in one season. It is this now very well known habit that has led to forced plants being saved and planted out with a view to having a second serviceable crop of fruit either in August or September and later, and where time and space can well be devoted to their culture the results are seldom other than satisfactory.

Whether the plants ripen their second crop in August or September and later largely depends upon the time when they were forced, the earliest turned out being naturally the first to crop again, a natural succession being had by planting, say, either Vicomtesse, or Noble, and Auguste Nicaise at one time. In each and every case, though, there ought to be no temporary neglect of the plants, as it is quite useless to expect much starved red-spider-infested examples to thrive, especially if a dry hot summer is experienced. If frame room can be spared transfer the forced plants from the heated houses to these, and keep well supplied with water, liquid manure, syringing being also beneficial. Frame shelter is not absolutely necessary, but good attendance in the shape of liberal waterings is, and we have a number of strong healthy plants of Noble that have been turned direct into a sheltered spot without apparently sustaining any injury. After a very little hardening off the sooner they are placed in their summer quarters the better is the prospect of heavy second crops being had. A sunny border conveniently near to the water supply is the best position for the plants, but they should have a clear course, as netting over will be imperative when the fruit is colouring. Lumpy, newly dug soil is not suitable, but the site, in all cases where the soil is of a clayey nature, should have some time since been manured and dug, and ere this would have become well pulverised, being now easily further fined down and made firm and level. Prior to planting the forced plants ought to have a good soaking of water, and be cleared of all dead leaves and runners. It is also advisable to loosen and slightly reduce the old ball of soil and roots, as thus treated they take more readily to their fresh quarters than is the case when planted intact. Not a little depends upon the way in which the planting is done, merely sticking such strong plants in the ground ending badly, especially if a dry season follows. The balls ought to be sunk slightly below the level, and the soil be very firmly rammed down about them. When levelled over there should be no trace of the old ball of soil and roots, and on the other hand the crowns must not be half

buried. What the distance apart should be depends upon the present size of the plants, but if they are disposed from 15 inches to 18 inches apart each way no mistake will have been made.

During showery seasons the plants are not much further trouble, but as a rule they will require to be watered within a week of the time they are planted out and at weekly intervals afterwards till they are strongly rooted in the fresh soil. Neglect these waterings and the chances are not much progress will be made. In any case mulch early with partially decayed manure, surfacing this over with strawy litter. Thus liberally treated all will throw up numerous strong trusses of flowers, and produce, in the case more especially of Noble and Auguste Nicaise, really fine fruit. It is a simple matter to keep birds from the fruit, but wasps and slugs have also to be reckoned with. The fruit is most surely saved from the latter if raised off the mulching material with the aid of crinolines, short stakes, and circles of raffia, or crutches formed of birch spray. Wasps are, or were at one time, the most difficult to combat, and if left alone they quickly clear off the ripe fruit. Even these can be kept away or destroyed with the aid of a small quantity of Davis's wasp killer. This extraordinary syrup has a most remarkable effect upon wasps, and that whether used under glass or in the open.

Late crops may be ripened under glass with advantage, and in some gardens they are so well done as to form good table ornaments for shooting parties and such like. Not unfrequently the plants are kept in the same pots they were first fruited in, being rather deeply plunged alongside garden walks and kept well supplied with water and liquid manure. They root out strongly over the rim of the pots into the surrounding soil, and before frosts intervene are lifted, cleared of some of the outer roots, and set in saucers on Peach house and other shelves, where the crops ripen admirably. I find the plants are the least trouble when planted out, and pot up readily, if need be in the autumn, without much prejudice to the crops. These old forced plants will fruit well the following season, that too in spite of their having produced two good crops during the preceding season, and if there is a scarcity of pot plants or any likelihood of extra large quantities of early fruit being required they may be lifted, repotted, and at once placed in forcing houses or in frames and pits. Last spring I had about 100 strong plants of Noble—forced during the previous year—lifted and placed in 8 inch pots when in full flower, and from these we gathered a grand lot of fruit when several extra large dishes were needed. Outside crops are likely to be later and much lighter than was the case last year, and in order to maintain an unbroken supply it may yet be necessary or advisable, where the stock of pot plants is nearly exhausted, to lift and force a batch. Let me advise that the preference be given to old forced plants.—W. IGGULDEN.

BULB CULTURE AT HOME.

I SHALL be glad if you will allow me to say a word or two in reply to the remarks made by your correspondent "A. D." under this heading in your last issue. That we can grow Narcissi in this country is known to everyone, and irrespective of Mr. Walker's Tulip fields. Tulips have been successfully cultivated in this country any time these last 100 years. My great-grandfather made more money out of Tulips than ever we are likely to do again. Of course those were exhibition varieties, and they received protection during the flowering season; but that does not detract from the fact that they were grown successfully and profitably. I also hear that Messrs. Henderson grew garden Tulips successfully fifty years ago, as doubtless did many others; but putting Narcissi and Tulips aside, I beg entirely to differ from your correspondent upon the question of growing Hyacinths.

When I see them well grown in this country from the commencement of their lives to the time when they are ready for sale as first-class pot roots, I will believe that our land is suitable for them; but until that comes to pass I shall be of opinion that, entirely apart from the question of profit, Hyacinths cannot be propagated and grown to perfection in this country. The attempt has been made to cultivate them in Belgium, and although the climatic conditions are similar, and the soil has been chosen to resemble as nearly as possible the bulb fields of Holland, the result is very unsatisfactory; indeed, from a commercial point of view an entire failure. Being in Belgium a State-aided industry, the question of profit does not so much affect the case, and every effort is made to make their cultivation a success. The most experienced workmen have been engaged from Holland to superintend the work, and the most approved bulb houses have been erected for drying and storing the bulbs. I am not sure how long the experiment has been going on, but it was in full swing during the time I was in Belgium in 1870, and I am told that from that time until now it has been found necessary to import the whole of the young

stock from Holland, and that all they are able to do with all their pains is to grow young stock on to a saleable size. Even if we succeeded in doing as much as this in England I think it would not be worth our while to attempt it.

With respect to the question of labour, I beg to say that the remarks made by your correspondent are not quoted from my writing. On the contrary, I never saw in Holland a workman who appeared miserable; and although I may have my own opinions about the desirability of such long hours of labour, I question the accuracy of the term "sweater" when applied to a man who employs men upon his own land, and gives them not only the current rate of wages but even more than the average outdoor workman obtains, to say nothing of the fact that he finds them employment, or more correctly speaking, pays them wages for doing next to nothing during the long-continued continental winter. The rate of wages and the hours of labour are much the same in Belgium as in Holland. I have (occasionally) worked fifteen hours myself in a Belgian nursery, and I left with such pleasant and kindly feelings to all I met there that it would grieve me to see any unkind names applied to them.—A. H. PEARSON.

FUNGUS ON FRUITS.

OF late years a fungus has become rather prevalent on half-ripe Peaches and other fruits. It infects Apricots, Cherries, Figs, Grapes, and Peaches. The attack is marked by a minute speck at the apex or upper side of the fruit, where moisture and the fungus spores alike find a seat, and the spot spreads rapidly over the fruit, causing a discoloured depressed patch, with a salmon-coloured centre somewhat raised. The fungus has been found to be, as the late Rev. M. J. Berkeley believed, the cause of "spot" in Grapes and other fruits, and is known as *Gloeosporium laticolor*. These minute fungi are difficult to contend with, but we find that a deposition of moisture on the surface of the fruit is absolutely essential to the germination of the fungus spores, if indeed the moisture is not a necessity of their finding a rest on the fruit. The only remedy is to collect and destroy by fire the attacked fruit, and it has been found that the employment of a 10 to 15 per cent. solution of sulphate of iron in water, applied in winter with a brush, destroys the spores of the fungus, and has no injurious effect on the bark of the trees. This, and the burning of all prunings and dead leaves, is a good preventive measure, also removing the surface soil and supplying fresh; but the spores may come from other quarters than the immediate locality of previous infestations, therefore the cultivator must not neglect to admit air freely after the fruit gives indications of ripening, and a gentle warmth should be kept in the pipes, if necessary, so as to allow of a little ventilation constantly, and thus prevent the deposition of moisture on the ripening fruit. Early ventilation is also imperative, as ambient air heated by the sun is rapidly condensed by the cooler surfaces of fruit. Another good plan is to coat the hot-water pipes lightly with a mixture of lime and sulphur. This is a "perfect cure," for the spores in germinating have their germinal tubes contracted and destroyed by the sulphur fumes. But though sulphur may be safely used in Peach and Fig houses, it must be very carefully used on hot-water pipes in vineries, for its fumes act perniciously on the tender skins of white Frontignan and white Muscat Grapes, hardening them and causing them to assume a purplish hue.

As it is the finest fruits, as a rule, that are infested by *Gloeosporium laticolor*, it is a good plan to place a circular piece of white cardboard over the fruit, say an inch above Peaches and Figs, the diameter about twice that of the fruit. This saves Peaches from ripening too rapidly at the apex when that is exposed to the direct rays of the sun, and it prevents moisture from descending and condensing on the fruit, so that the spores of *Gloeosporium* remain dormant or perish. It saves grand fruit from falling a prey to "spot," and it is well worth the trouble, as Peaches 10 to 12 inches in circumference always tell favourably at dessert.

The Muscat of Alexandria Grape often falls a victim to "spot," and the berries most liable to attack are the finest specimens, simply because their skins are distended and thin, hence more susceptible of injury from moisture resting upon them. If a piece of cardboard, an inch larger every way than the bunch, be placed above the shoulder, so as to hang just clear of the berries, it will save them from descending moisture and *Gloeosporium* attacks, as well as from mice and rats. It is easy to cut a hole in the centre of the cardboard to admit the stem of the bunch, and cut a slit from the hole to the edge of the cardboard on one side only, and by that slip the cardboard over the bunch and keep the edges of the cut together with wire clamps. The point, however, is to ventilate early to prevent the atmospheric moisture expanded by

the sun from condensing on the berries. The ventilation, in other respects, must be carefully attended to for carrying the crops to perfection.—G. A.

ENGLISH TULIPS.

THERE must be many of us, writes "Wanderer," who have some of Ruskin's horror of the railway, and desert it as opportunity offers for other methods of progression. On foot or awheel it is easy to diverge from the highways and seek the pleasures that are hidden away in the nooks and corners of every country side. Apart from the familiar yet never wearying features of the flowers and trees, one meets with quaint old gardens of a style undreamed of by the great majority, or finds himself in some spot which the busy world passes by, but in which there is some object of special interest. It has been so with me many times. I have sought nothing, but have found much, albeit often of no great repute as the world goes. I could tell of many scenes which no great garden I have seen could match in quiet beauty and natural charm, and of small places in which there are choice treasures not to be found in large establishments. There are old-world places and old-world flowers, all a source of happiness and pleasure.

In a recent May ramble my course led me to spots that Mr. Luckhurst's pleasant pen has touched upon in days gone by, and I am sure he would agree with me that the slopes and glades of Ashdown Forest are full of charm while the merry month is with us. He would go farther, perhaps, as I do, and say that there are pleasant pictures to be met with if one journeys on into other parts of smiling Sussex—onwards say, towards Hastings and Eastbourne from the west. The long climb from Forest Row to Wych Cross is a little trying perhaps, for it is uphill for three miles, but there is a great reward when the summit is reached, and the temptation to pass on down the sloping forest road to Nutley and Maresfield is too strong to be resisted. When there, Buxted to the left or Uckfield to the right form so easy a stage that one of them is sure to be attained. And after? Why, it would be well enough to turn and scour fresh lanes and byeways in search of a new route back to London, with contempt for the railway that is now so near still unappeased, or to take the hint from signboards which say that Tunbridge Wells is only a few miles distant, and there would be pleasure in either too. But in halting irresolutely at the cross roads a good genius comes and whispers in my ear, "Yonder, over the hills towards the sea, near where the long stretch of woodland is broken by that lofty tower, and the mills show through the tall trees, are glorious flowers that you love; seek them."

The genius speaks truly, there is no need to question her. Brightly there flashes back the recollection of the place of which she speaks, where the landscape spreads away for miles, and beyond, in the steely clearness, flash the white wings upon the deep. Along the dusty turnpike, whitened by the sun heat, and through devious lanes, ever ascending, my way takes me. The end in view is sharply defined, and hence the machinations of a peasantry apparently animated by an insatiable desire for misdirecting me come to naught. They get me into circuitous ways when subsequent inquiry reveals a straight one just by; they send me down fearful lanes wherein steep gradients are freely garnished with alternated depths of dust and boulders when there is a smooth-surfaced road that is still nearer; but at last a familiar road lined with trim cottages is reached, and, further on, is a pleasant house among the trees where the flowers which I seek find a home. The borders, it is noticed, are brilliant with choice shrubs, the rockwork a sheet of colour, the fruit trees lower down bright with blossom. A conservatory shrouds the front door; a conservatory so full that an overflow meeting of plants is being held outside—discussing the better housing of the poor perhaps. To whom could such a house belong but to one who loved flowers and knew them well? Ah! (I knew it all along, of course), it is Dr. Hogg who emerges to meet me, and shakes me by the hand and bids me heartily welcome. He knows what my errand is; he knows that I love and am a learner, and that is enough for him.

We wend our way through the garden, reinforced by a Novice (see Journal, June 11th, 1891), who had declined the pleasures of the road and come down by train; and there, beneath a capacious awning, we find the flowers of which the genius spoke, a glorious array of noble English Tulips, a brilliant, glistening band, flaming with purple and gold. There is a magnificent bed of them, nearly 500 strong, and the effect they produce is one impossible to describe. The aforesaid Novice has told Journal readers how the Doctor has laboured with loving care to perfect his collection, and with what infinite pains he has tested and compared the varieties; how he has made acquisitions and discarded inferiorities in the

steadfast endeavour to have the best flowers, and how, year by year, he is getting nearer to the accomplishment of his object. Not having followed the progress of events year by year I cannot say what the earlier stages have been; but it is hard to imagine a more wonderful sight than the Tulips now present when viewed collectively, or more superb quality when taken individually. With a few exceptions, mostly of foreign extraction judging by their names, and which are marked for discardure, they are remarkable for stout and perfectly disposed petals, and clean, evenly marked white or golden base. They are arranged in rows of seven across the bed, the number of each row being marked on a raised ledge, and the names of the varieties entered in a book.

No more beautiful hostages to fortune have been given than the splendid Bizarres, which are distinguished by their groundwork of yellow. Without, the flowers are flamed or feathered with many hues; within, they bear the mark of a stainless reputation in the circle of gold at the base. We take them for special consideration in our first journey down the bed. There is George Hayward, a splendid example of a grand variety, and near it is Victor Emmanuel, less known, but having a beautiful rounded petal and a perfect base. Sir J. Paxton, recognisable by its perfect cup shape, is represented by three strains—Mellor's, Bentley's, and Hardy's—and is a fine Tulip. Golden Ring is a well-formed flower, but the base is not clean—ergo, it has to go. We sympathise with it in its banishment from a noble throng, and pass on to Colbert, somewhat small, but very bright, which the Novice specially admires. His taste is not to be questioned, for it is a beautiful flower. The Doctor outside the bed then directs our attention to two others within it—Dr. Horner, dwarf, perfect in form and having an excellent base; and Dr. Dalton, a bright and very attractive flower. Prince of Wales and Dr. Hardy (Doctor No. 4, they are evidently a Tulip family) follow, and near them is the beautiful Storer's No. 4, which affords a lesson in itself, throwing two broken and one breeder flowers. Vivid has a beautiful base and is very bright in tone, while in Criterion we see a beautiful crimson self of which one flower has broken into a rich purple with golden flames. Glory of Stakehill is small but very neat in form. Masterpiece follows it. It breaks in many ways, sometimes being splendidly marked and at others ragged, but is a noble fellow at his best. Ariosto is rich in colour, but was not perfectly broken. Pilot strikes everyone as a splendid variety. It combines fine habit with faultless shape, magnificent base, and rich lustrous colour. It is one of the gems of the collection. Lastly, there is Ajax, a fine flower, but which has hardly defied the lightning as successfully as the others, the colour being rather low.

We retrace our steps and in a second survey take the Bybloemens, which are violet or purple on a white ground. Duchess of Sutherland is a neat flower, and so is Lord Denman, who, however, is inclined to hang his head more than would have been approved by the learned judge whose name he bears. The colour of Don Carlos is like the value of Spanish money, rather low, but Friar Tuck has a fine base and stands firmer in the Doctor's estimation than the original Friar did under the heavy hand of Richard. Mrs. Jackson possesses beautiful form, and Anastasius is a grand flower, finely formed, substantial, and of a rich plum colour. La Vraie Noire is an attractive light flower of the type of Lord Denman. Glory of Walworth combines perfect shape with a fine base, and Adonis is equally noteworthy in the latter respect. Queen of May, though imperfectly broken, displays a splendid base, and so does Bessie, but she is given to turning back her petals. Triomphe de Lille stands out as one of the few good foreigners. Maid of Orleans, Everard, Mrs. Pickersgill, Juno, and Alice Maud all awaken admiration, and to finish with there are the two magnificent varieties Sarah Headly and Storer's No. 2. In the estimation of many the latter is the pick of the Bybloemens. It is an improved Lord Denman, beautifully cupped, with substantial petals and a perfect base.

The Rose section, which have rose, scarlet, or crimson on a white ground, embrace some brilliant flowers. Madame St. Arnaud and Mrs. Lea are two varieties both remarkable for beauty of base. Pretty Jane is equally good and exhibits great beauty of colouring. Lizzie Watkins is also a fine flower. Apollo is magnificent, and may be classed as one of the elect. So may Modesty, a flower of beautiful form. Crown Prince, La Sultane, and Gill's Industry are a trio of charming varieties; and last of all there is a glorious Rose named Annie McGregor. It is represented both in breeder and broken forms, and it is hard to say which is the more beautiful. In every respect it is a perfect flower.

There are other beds than this and other flowers than those named, but all cannot be named. One thing is clear, the Doctor will spare no trouble to have a perfect collection, and he has already got so far that his work must, it would seem, be nearly done. The flowers linger in my thoughts when his beautiful

garden is far behind, and their flaming glory is revived in the ruddy glow of the sunset from the forest's brow, but do not fade, like the latter, as the shades of evening steal over the hillsides. May their bright influences spread far and wide.

Here the Novice steps in and asks, Who is to spread them? Amateur florists are proverbially kind and willing to help each other, but for obvious reasons they cannot spread their cherished gems far and wide. Not until characteristic forms of English Tulips are recognised in commerce will they be generally obtainable. For a long time it seemed as if they would have no trade home; but a colony, and not a small one, was formed at Kelso by Messrs. Stuart & Mein, and another is now established at Long Ditton in Messrs. Barr & Son's grounds of Daffodil fame. If Mr. William Barr can do for and with these Tulips a tithe of what the energetic and devoted head of the firm did for the Daffodil, he will make himself a name that will not soon be forgotten. The young fancier is enthusiastic, diligent, and careful, as was evident when note was taken on a sultry day of 5000 or 6000 individual blooms, under the cool guidance of a veteran. As of some varieties there are several bulbs, mayhap the time is not far distant when at least a few may be "offered," not at prohibitive prices. What are sold as florists' varieties must be clear, distinct, and correct; and this is evidently the object, for all that departed from the standard type were marked to go in mixture. These may be distributed as decorative varieties for garden embellishment, and some of them may, and it is hoped will, create a desire for something better, brighter, clearer, and more refined.

It may appear a bold assertion, but it is all the same accurate that the most perfect forms of florists' Tulips can only, as a rule, be found in Britain. The "Amateurs' Tulips of the Continent, though effective enough in the mass, will not bear examination when viewed from the florist's standard. They are either defective in form, substance, or the running of the colours down to the base. The clean spotless basal disc which no stripe should pierce, is rarely to be found in the continentals, and they are thus devoid of one of the chief points of merit, or what may be fairly described as the hall-mark of excellence. Having regard to the defects of so many imported feathered and flamed varieties, it seems desirable that the truest and highest types should have a distinguishing term; and as undoubtedly these are "quite English you know," it is only just and fair that they should be recognised as "English Tulips."

TOP HEAT, GLAZED POTS, AND ARTIFICIAL MANURE.

SINCE the appearance of your article under the above heading on page 333, March 31st, 1892, I have had many letters and requests for further information.

1, Top Heat.—The pipes for affording top heat in my house were put in at the time of building by Messrs. Foster & Pearson of Nottingham, and it being, I understood, the first arrangement of the kind by them, I gave my instructions as follows:—The flow pipe to run along in front of the house inside, opposite the gutter, and the return along the purline; a valve to be provided on both flow and return. Should the wish be only to keep frost out of the house, turn the top heat on only. I never turn my top heat off in the winter completely, and when I turn on the heat to a house always turn the top heat on full, regulating the body heat of the house by the other valves.

2, Glazed Pots.—Any potters who will take the trouble to make glazed pots can do so easily. The glaze should be on the whole outer surface, and about 1 inch returned on the top inside.

3, Artificial Manure.—The wholesale chemists, Messrs. Richardson and Co., Leicester, make me the artificial manure, and they have called my attention to the fact that all the ingredients, some very material, are not given in the article above referred to. As to price, I do not think that I am at liberty to answer that question, as a considerable reduction is made to me, for I have, as a general practitioner in a country practice of thirty years standing, had to dispense medicine at home; but on application at the above address the price and tins are sold with a measure for the powder to the gallon of water. Artificial manure must always be used with care, and only when the plants are in rapid growth.—C. J., Waldronhyrst, Croydon.

DOUBLE IVY-LEAF PELARGONIUMS.

I WAS surprised to hear that the blooms of this section do not keep well when cut. I find them quite the opposite to this, and look upon them as first rate for that purpose, either at home or for sending away. Like everything else they need gathering and packing properly. But the point which I most wish to refer to respecting the merits of Ivy-leaf Pelargoniums is their adaptability for covering back walls of green-houses, where it is at times difficult to get some plants to succeed owing to the absence of full light from the roof above, which is very often

occupied with climbing plants of some sort, very often Roses. In our case it is so, yet plants of Madame Crousse and Alice Crousse planted in a narrow border at the foot of the back wall cover their allotted space of 12 feet high and as much wide, flowering profusely from the early part of April until the end of October.

When grown in this way Ivy-leaf Pelargoniums, besides being showy, provide a quantity of cut blooms. The same plants have stood in their present quarters eight years, and from their appearance promise many more years of duty. When the shoots reached the top of the wall they were kept topped to induce vigorous growths to push from the nodes below, the strongest of these were tied to the wires on the wall, while others were allowed to hang loosely. The same method has been practised ever since. For covering low walls out of doors during the summer these Pelargoniums are most useful, especially as they succeed well on a southern aspect. Plenty of sun and abundance of water at the roots are what are required to induce them to grow and flower freely and quickly outside. Autumn struck cuttings grown hardily through the winter are the best for this mode of growth. I have had but little success with them bedded, owing to the want of a suitable spot; that which is at all shaded is not what they like.—E. M.



EDINBURGH EXHIBITION.

THE Edinburgh Exhibition for 1892, held under the auspices of the Scottish Horticultural Association, is fixed for November 17th, 18th, and 19th, and is to be held in the Waverley Market. There are good prizes for plants, while in the cut bloom classes they are exceptionally liberal. The City of Edinburgh cup, value £20, is offered for forty-eight Japanese, with minor prizes of £10, £5, £3, and £2, while the Scottish challenge cup and £5 are offered for eighteen incurved and eighteen Japanese. There are numerous special prizes.

CONFUSION IN NOMENCLATURE.

AFTER carefully perusing Mr. Molyneux's note in regard to the relative merits of the Chrysanthemum sport John Lambert and Golden Queen of England, it seems to me the only objection he has to the sport is its similarity to the last-named, though in which respect he has not made clear to me. Your correspondent by using the adjective "supposed" in reference to the sport implies that it is not a sport at all; this I consider unjust to Mr. Lambert, and it certainly shows a want of confidence in the discrimination of the N.C.S. Mr. Molyneux further remarks, "Why should I wish to disparage any variety which is generally admitted to be an improvement on existing sorts?" This is the very thing that has puzzled me, but nevertheless the fact remains.

If John Lambert, grown from cuttings sent to Swanmore (not necessarily the best), produced blooms which gained a certificate at Chiswick, and elicited from the Judges such remarks of approval, and also in the following year, after passing under the scrutiny of the N.C.S., gained another certificate as a distinct sort under the name of John Lambert, surely it must be worthy of a place on the Chrysanthemum analysis of 1891. If Mr. Molyneux, notwithstanding his disparagement, gave John Lambert premier position at Chiswick in preference to his own Golden Queens, and Mr. Lambert has shown it with such great success, I do not think I shall regret the step I have taken in sticking to the sport and consigning Golden Queen to the fire heap, hoping thus to avoid any further "confusion in nomenclature."—LANCASTRIAN.

MR. MOLYNEUX states in his reply to "Lancastrian" (page 361) that with his wide experience of Chrysanthemum exhibitions he cannot call to mind one instance where Golden Queen of England and John Lambert have been staged together as distinct. Mr. Molyneux's memory is not very good on the point, perhaps because his experience is so great and he cannot therefore retain all that comes under his notice. The two have been staged together as distinct in a first prize stand by one of his own friends, and the show, with names of the varieties, was duly reported in the Journal. He will, on reflection, no doubt call it to mind and then admit his little lapse of memory.

I sent Mr. Molyneux my sport, and he subsequently wrote me that it was such a grandly built flower and of such a good colour that the judges who saw it at Chiswick remarked they were the finest blooms they had ever seen. Now please let me ask Mr. Molyneux why he took the blooms of my sport and showed them as Golden Queen of England, instead of taking his own Golden Queens or Emily Dales? That is a legitimate question. After a two-years trial it gained the "National's" first class certificate and its name was not questioned.

Mr. Molyneux asks why he should wish to disparage any variety which is generally admitted to be an improvement upon existing sorts. That is best known to himself. I wish to know what right he had to change the name of my sport when he exhibited it at Chiswick. If he did not like the name he could have left the blooms at home and staged some of his own Golden Queens. Mr. Molyneux did not do this, but

adopted a course for which, so far as I know, there is no precedent. I am entitled to a reply on this point, which is a fundamental one.

The sport is still living, like its raiser; and I should advise exhibitors to be sure and name it Golden Queen if they know Mr. Molyneux is to be one of the judges. My advice to anyone who may be plagued with a good incurved sport is, keep it to yourself. If you are an exhibitor and if it is a good one you will always be able to gain a point or two over your opponents. Never give a cutting away, if you intend to sell the sport, till you have gained for it the National's first class certificate, even if Mr. Molyneux refuses to acknowledge it.—JOHN LAMBERT, *Powis Castle, N. Wales.*

RIDGE CUCUMBERS.

ASSUMING that a good base of fermenting materials has been pressed in a trench 2 feet deep and strong plants raised, they may be put out now in half a bushel of loam and leaf soil to give them a start, the remainder of the soil consisting of that removed from the trench; cover with handglasses and give tepid water. The glasses should be closed at about two o'clock in the afternoon after syringing or damping the plants lightly with a fine-rosed watering pot; this promotes a genial heat for the plants. They should only be damped on bright days.

Train three or four shoots resulting from pinching the tops out of the plants a couple of weeks previously, regularly over the bed when they are long enough, at the same time placing three brickbats under each handlight to allow of the shoots extending outside their limits. When the shoots have attained a length of about 18 inches pinch off the points. This will cause one or two Cucumbers to set on each and side shoots to push forth. The growths should be stopped at one joint beyond the fruit. The handglasses may eventually be removed.

Avoid crowding the shoots and overcropping the plants as the worst evils in Cucumber culture, or, for that matter, in the culture of fruit-bearing plants of any description. Therefore keep the shoots well thinned and stopped, and remove all bad leaves as soon as they appear on the plants. The plants should be kept uniformly moist at the roots. The Cucumbers should be cut before they become overgrown or lose the dark green colour which generally indicates crispness, and be placed on a saucer containing half an inch of water in a cool room or cellar until required for use.—H. W. WARD.

HEPATICAS.

HAVING observed what "D., Deal," says at pages 373-74, I should like to know who does not observe the remarks of that interesting and charming writer on our garden pets. Speaking on the failure of the Hepaticas double blue and red, he asks, "Why they should be so difficult I cannot understand," and then proceeds with his experience "when a boy." It is similar to my own. So robust were my plants that I used to relegate them to any out-of-the-way place, such as under a shrub, bush, or at the foot of a hedge, a bad requital for their charms in spring. As the plants increased so they were coveted by friends, and I endeavoured to supply all who asked, tearing off the young offshoots until the old stools refused after many years to grow any larger. New supplies were obtained, and for a time promised to do well; but, alas! every spring brought blighted hopes. A close inspection revealed the cause of my great disappointment. The grubs of the daddy longlegs had been the depredators, but I am now rewarded by seeing my Hepaticas renewing their vigour. I have two blues, or rather purples, but not *H. angulosa*. One of these I had from an old florist who raised it, and for fifty years he laboured in vain to raise a white double.

Now, since the smoke has become so great a nuisance, deciduous plants are the only ones I can depend upon. Primroses, Auriculas, and Polyanthus are difficult to keep. Their loss is, however, due more to the ravages of the common earthworm than the smoke, at least they are the only pests I can find. They cut the roots as if with a knife, the frost throws the plants out, then the worms draw them under the surface, and that is the end of my plants.—W. T., *Blantyre.*

GARDEN FRAMES.

COMPLAINTS having been made that the excessive cold of the last two winters had caused many deaths among half-hardy plants usually kept in frames during winter I devised a plan that I think will be successful. I bought some feather-edge boards, 2-inch quartering, and some slating battens. I knocked the frames apart, sawed an inch off each end of the boards where the nails had been, and nailed a 2-inch piece of quartering inside at each end to keep the boards together, and then nailed my feather edge on the outside, giving only a 1-inch lap. In this way I had my frames in four portions with a space between the inside and outside boards of 2 inches. I had eight hooks and sixteen staples made, and placed a hook on the top and only a staple at the bottom alternately, so that the hooks did not both hook the same way, i.e. right and left, so that one hook might pull against the other when put together. The slating battens I nailed along the two sides, and cut a dovetail top and bottom for the guide bar down the centre to rest in. The frames cost me altering 20s. each; that included three coats of Carson's paint. I shall have the space between the boards filled with ashes, and will report if I live through another winter the success or the reverse of my operation.—C. J., *Waldronhyrst, Croydon.*



EVENTS OF THE WEEK.—To-day (the 9th) the Midland Pansy Society's Show takes place at Birmingham, and a meeting of the Brighton and Sussex New Horticultural Society is to be held. A meeting of the Royal Botanic Society will take place on the 11th, and on the 14th and 15th the Sussex Agricultural and Horticultural Society will be held at Harlow. The Yorkshire Gala takes place at York on the 15th, 16th, and 17th. There will be sales of Orchids at Messrs Protheroe & Morris's rooms on the 10th and 14th, and a sale of Palm seeds on the 15th.

— **THE WEATHER IN LONDON.**—The weather has been on the whole warm and dry during the past week, but heavy showers fell at frequent intervals on the 5th with beneficial results to vegetation. On the 6th and 7th the barometer had risen, and the weather was warm, dry, and bright. At the time of going to press the same conditions prevail, and the barometer is high and firm.

— **WHITSUN AMONGST THE FLOWERS.**—The fine weather on Whit-Monday attracted thousands of pleasure-seekers into the parks and gardens. Most of the former were thronged with visitors. The number who entered Kew Gardens was stated to be 79,000 in the daily papers. 43,646 visited the International Horticultural Exhibition.

— **A FLOWER SERMON.**—The Rev. Dr. Whittemore preached his fortieth flower sermon at the Church of St. Katherine Cree on the evening of the 7th inst., and referred with pleasure to the fact that since this annual sermon on a floral subject was adopted as the outcome of a suggestion made to him thirty-nine years ago, many others have been preached in different parts of the country. At the close of the service the bouquets taken by the congregation were collected for distribution at the hospitals.

— **RHODODENDRONS AT EARL'S COURT.**—The Rhododendrons in the grounds of the International Horticultural Exhibition are now full of bloom and make a gorgeous display, which is much admired by the visitors. Two large groups were planted by Messrs. H. Lane & Son and W. Paul & Son respectively. The large trusses and judiciously blended colours are highly effective. Messrs. Lane's group is in the Central, and Messrs. Paul's in the Western Gardens.

— **INSECTIVOROUS PLANTS ON SHOW.**—It was intimated in our report of the International Horticultural Exhibition that a handsome structure had been erected by Messrs. Crompton & Fawkes, and was to be furnished with insectivorous plants. It has since been filled by Messrs. B. S. Williams & Son, and as the allotted occupants of the structure are strengthened by a charming display of Orchids it is both interesting and attractive. The Venus's Fly Trap, Sundews, Sarracenias, and other plants receive close attention from the visitors.

— **VEITCH'S EXTRA EARLY CAULIFLOWER.**—The above has again proved worthy of the place accorded it as the earliest of our Cauliflowers, as we have to-day, June 4th, cut compact little heads of snowy whiteness from seed sown the first week in February. The plants were put out the last week in March, and protected by flower pots. We thus avoid any gap after the Broccoli, as we still have a few of the Late Queen to cut, that and Model having best withstood the long severe winter. I find those from the late sowing the last week in May to stand severe weather best.—J. H.

— **A FINE COLLECTION OF PEACHES.**—Mr. Dunn has good reason to be proud of the Peaches and Nectarines under his charge at Oakleigh, East Grinstead, for a healthier and better managed collection is rarely met with. They were not in the best order when he first took them in hand, as I had opportunities of noting, but a great change has been brought about by attention and good culture. The selection of varieties comprises Alexandra, Barrington, Royal George, Sea Eagle, Noblesse, Grosse Mignonne, Walburton Admirable, Violette Hâtive, Bellegarde, Prince of Wales, Stirling Castle, and Dr. Hogg Peaches; Rivers' Orange, Lord Napier, Elruge, Hardwicke, Albert Victor, Humboldt, and Prince of Wales Nectarines. The crop is good, the trees healthy, and the growth free.—WANDERER.

— **RHODODENDRONS AT LANDPORT.**—The Rhododendrons in the Victoria Park, Landport, near Portsmouth, are now in full bloom, and will well repay a visit from anyone in the neighbourhood.

— **YORK FLORISTS' SOCIETY.**—At the last monthly meeting of this Society Mr. Riddell, The Gardens, Castle Howard, read a paper on soils, treating the subject in an able and interesting manner.

— **GARDENING APPOINTMENT.**—Mr. James Foster, for the last three years foreman at Elvetham Park, Winchfield, Hants, has been appointed head gardener to Captain Gassiot, Hampton Lodge, Tongham, near Farnham, Surrey.

— **GLOXINIA LORD SALISBURY.**—This Gloxinia, for which Messrs. Laing & Son received a first-class certificate from the Royal Botanic Society, is a very attractive one. It is deep purple shaded with crimson maroon, the throat spotted with purple.

— **THE HORTICULTURAL CLUB—SIR JOHN D. LLEWELYN'S PAPER.**—A digest of the interesting paper on Egyptian Mural Industries read by Sir J. D. T. Llewelyn, Bart., on May 25th, did not reach us from the office of a contemporary till a week after the event and consequently too late for insertion.

— **OLD ENGLISH TULIPS.**—A Kelso paper says that Messrs Stuart & Mein's extensive collection of Old English Tulips is now in bloom, and thinks there is not such another sight to be seen in Scotland as they present. This is extremely probable, and anyone who has an opportunity of giving Messrs. Stuart & Mein a call should do so.

— **LATE BROCCOLI.**—I note on page 371 Mr. John Chinnery contributes an article on late Broccoli, and enumerates a list of varieties which he has found good for spring use. If he has not tried Sutton's Late Queen I advise him to do so, and I am sure he will be pleased with it.—R. M.

— **QUEEN WASPS.**—Mr. W. R. Raillem's experience, recorded on page 414, does not tally with mine. We have killed over twenty queen wasps here this spring. I do not know how many have escaped. Probably they do not inhabit some parts of the globe so much as others. They were not so plentiful with us last year as in 1890, but still we had enough to destroy a good deal of fruit.—R. M., *Monmouthshire*.

— **THE RAINFALL IN MAY.**—The total rainfall for May at Cuckfield, Sussex, was 1.02 inch, being 0.93 inch below the average; the heaviest fall was 0.65 inch, on 25th. Rain fell on three days. The maximum temperature was 83°, on the 31st; the minimum 32°, on 7th. Mean maximum 65.2°, mean minimum 45°, mean temperature 55.1°. Partial shade readings 3° above the average. The thunder showers of the 25th and 26th did much good, but still more rain is wanted in this district. June came in dull and cool.—R. I.

— **BEDDING VIOLAS.**—On page 415 in the Journal of last week a correspondent ("L. J.") asks for the names of the three best Violas of white, yellow, and blue colours, and you have given the names of three of the best all-round varieties known, for we have no blue so blue and so excellent as True Blue, and no white to beat Countess of Hopetoun; but I would suggest another deep yellow (Bullion), as, in my opinion, the best of all our yellows. It is very early and continuous in blooming, of good habit, and of a rich deep yellow colour. Ardwell Gem is a light primrose yellow. All four are close growers and immense bloomers.—W. D.

— **STAPHYLEA COLCHICA.**—This has proved very acceptable, and a most useful forcing plant by the freedom with which its sweet-scented flowers are produced, but it is seldom met with planted out in the open. With me it has proved quite hardy in the shrubby borders, several plants at the present time being covered with flowers, although some Laurustinus close by have been quite cut back by the severe frost of the past winter.—J. H., *Benham, Newbury*.

— **DAHLIAS AT CRAWLEY.**—Autumn is, of course, the best time to visit Crawley for the purpose of inspecting Messrs. Chcal's Dahlias, but there is something of interest about them now that thousands of healthy young plants are being packed up and sent away. They go to almost all parts of the world, for the reputation of the firm has extended beyond the confines of the United Kingdom. It is astonishing to note the enormous number of plants that are grown for meeting the demand. There were long ranges of pits and frames full of them recently. The Tom Thumb section are growing in popularity, and some of them are now in bloom.

— MAY WEATHER IN HERTS.—The weather during the past month has been remarkably dry with an abundance of sunshine. Some very sharp frosts were experienced in the early part. Rain fell upon ten days. The maximum in any twenty-four hours was 0.41 on the 25th, minimum 0.02 on the 16th; total for the whole month 1.37 against 2.76 of 1891. The Rose maggot is very abundant, but I never had less of green fly. Slugs have been far less abundant than usual.—E. WALLIS, *The Gardens, Hamels Park, Buntingford*.

— THE WEATHER LAST MONTH.—May was very dry, especially during the early part, the rainfall being 0.87 inch below the average of the last ten years. We had seven bright days, five of which were clear. The wind was in a westerly direction nineteen days. Barometer, highest 30.46 at 9 A.M. on 12th; lowest 29.60 at 9 P.M. on 16th; rainfall, 1.75 inch, which fell on sixteen days, the greatest daily fall being 0.45 on 3rd. Temperature, highest in shade 81° on 28th; lowest, 26° on 7th; lowest on grass, 20° on 1st and 7th; mean of daily maximum, 63.83°; mean of daily minimum, 42.93°; mean temperature of the month, 53.38°. The garden spring ran 24 gallons per minute on the 31st.—W. H. DIVERS, *Ketton Hall Gardens, Stamford*.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, May, 56 feet above mean sea level.—Mean temperature of month, 52.4°. Maximum on the 28th, 77.5°; minimum on the 1st, 29.2°. Maximum in the sun on the 31st, 132.2°; minimum on the grass on the 1st, 16.0°. Mean temperature of the air at 9 A.M., 54.0°. Mean temperature of the soil 1 foot deep, 50.9°. Nights below 32° in shade, three; on grass, ten. Sunshine: Total duration in month, 166 hours, or 34 per cent. of possible duration. We had two sunless days. Total rainfall, 2.58 inches; rain fell on thirteen days. Average velocity of wind, 11.8 miles per hour; velocity exceeded 400 miles on six days, fell short of 100 miles on one day. Approximate averages for May.—Mean temperature, 51.1°; sunshine, 175 hours; rainfall, 2.11 inches. Rather cold at first, but the latter part of the month was warm and showery, and everything has made very rapid growth. The country is looking very well.—J. MALLENDER.

— ROCK PLANTS IN DULWICH PARK.—There is now a beautiful display of rock plants and shrubs in Dulwich Park, which is undoubtedly one of the most attractively laid out and best managed of the "lungs of London." The broad masses of the lovely *Aubrietia Leichtlinii*, of *A. Campbelli* Improved, *A. Hendersoni*, *A. græca*, *Saxifraga Wallacei*, and others in great variety, *Alyssum saxatile compactum*, and many other plants are delightful as seen hanging over the surface of the stones. They were cherished by the former superintendent, Mr. Melville, and find an appreciative grower in his successor, Mr. J. W. Moorman. The park is only a little more than 70 acres in extent, but has been laid out so admirably as to give an idea of much greater size, and is full of beautiful effects. Mr. Moorman did good work at Myatt's Fields and Brockwell Park before his transference to Dulwich, and the excellent condition of his present charge more than justifies his promotion.

— STOCKS IN EARLY SUMMER.—I was in a garden the other day where some white Intermediate Stocks planted out were blooming superbly, the main spikes being some 7 or 8 inches in length. The plants were raised from seed sown last autumn, and wintered in small pots in a greenhouse, then planted out in the open ground about the middle of April, and got into this fine bloom at the end of May. There was nothing new or remarkable about it, but all the same it is a fact that Stocks are for this particular work far too much neglected, and many of the fine varieties which, because the seed is sown only in the spring have comparatively short lives, would be much longer lived and become very much stronger plants were seed sown in the autumn and the seedling plants kept through the winter for early spring planting. It is worthy of note that although this particular white Intermediate Stock has been grown for several years in this way, being seed saved every year, yet the double character of the variety suffers not, for the production of doubles is fully 75 to 80 per cent. This fact shows that the common assertion that it is needful to grow all this class of Stocks in pots yearly to maintain the double character is incorrect. Even if these Intermediate or pyramidal Stocks be grown in pots solely for greenhouse decoration they are wonderfully valuable as well as rich in perfume. We can have so many other flowers during the summer and autumn that it is not good practice to ignore the usefulness of what are called summer Stocks for spring blooming. Then if we will sow seed of these fine Intermediates now, and thus get by November next strong branching plants established singly in 6-inch pots, we may have them in gentle warmth blooming all through the winter.—A. D.

— HASTENING THE PEA CROP.—There is as striking an example as anyone need wish of the advantages of sowing the early crops of Peas under glass at Oakleigh, East Grinstead. Rows are growing side by side in different parts of the kitchen garden—one sown out of doors, the other raised in boxes under glass and afterwards planted out. In every case the crop has been materially hastened by the latter method. Those sown out of doors in January were kept back by the cold winds and frost, and are now a long way off the flowering stage, while those that were sown under glass on the same date, the variety being the same, were in full bloom, and beginning to pod the third week in May.

— FRUIT IN KENT.—The Cherry crop, writes Mr. A. J. Thomas from Sittingbourne, is going to be a large one. If the stoning process goes on all right it will be one of the largest crops for some years. I am busy pulling off some of the berries. I shall get off about five tons this week. The Pears will be a very fine crop; they are looking well. I keep the pump handle going now. The Apples in the neighbourhood will, I think, be a large crop. There is some complaint of the small maggot under the cap of the bloom, but for all that I think there will be a crop. Plums are fair, but not a general crop. Bradley's King Damson is very good. Should the weather continue as we have had it the Cherries will begin to ripen from the 15th to the 20th of June.

— EARLY PEAS.—I send for your inspection a sample of Green Peas. It may be interesting to readers of your Journal to know that we gathered our first lot on the 30th of May, "a real good gathering." The variety is Sutton's Ringleader. The Peas were sown the third week in January in boxes, and transplanted the last week in February on a sunny border in ground that was double dug. Our first gathering in former years has been about the second week in June. I may add that the rows were copiously supplied with liquid manure from a sewage tank. There is no doubt that the bright sun of the past month has been very beneficial.—F. WITT, *The Gardens, Fryern Court, Fordingbridge*. [A very good sample of well-filled pods.]

— A GOOD EXAMPLE.—The Committee of the Birmingham and Midland Counties Chrysanthemum, Fruit, and Floricultural Society, finding that they have now sufficient accumulated capital in the bank to guarantee them against any loss that may occur through unfavourable weather, have unanimously decided to give all profits arising from their next Chrysanthemum Show, after all expenses in connection therewith have been paid, to the New General Hospital Building Fund; and in order to further increase the balance, which they hope to be in a position to hand over, they have further decided to extend the Show to three days instead of two. The Show will, therefore, be held on November 8th, 9th, and 10th.

— THE FINANCIAL RESULT OF THE TEMPLE SHOW, 1892.—Notwithstanding certain adverse circumstances the Show of the Royal Horticultural Society held in the Temple Gardens this year was in every respect as great a success as in previous years. The action of the Council in raising the price of admission for the first few hours was evidently keenly appreciated by the Fellows of the Society, who were enabled to obtain a good view of the exhibits without undergoing the discomfort of crushing. On the second day gardeners also availed themselves of the privilege to see the Show as early as possible, and were able to make their notes before the inrush of the great majority of the public at 1 o'clock. It may be added that from a financial point of view the Show was a greater success than any of its predecessors.

— CORDON PEARS.—Messrs. Cheal & Son make a great speciality of cordons in their extensive nurseries near Crawley, and send out trees by thousands. They have cordons almost everywhere—under glass and out of doors, on walls, fences, and arches. There is hardly a yard of vacant space, all is covered with trees, some trained in the usual manner diagonally, others in opposite directions to form diamonds, while the sides of walks are garnished with horizontal lines. The cordon house is well filled with healthy trees, and affords opportunities for comparison, as in addition to such well-known varieties as *Emile d'Heyst*, *Josephine de Malines*, *Beurré Sterckmans*, *General Todtleben*, *Maréchal de Cour*, *Doyenné du Comice*, *Thompson's*, *Durondeau*, and *Pitmaston Duchess*, there are many less familiar sorts, such as *Duchesse de Mouchy*, *King Edward*, a very large Pear; *Princess*, a seedling from *Louise Bonne* of Jersey, larger, and a good grower, but hardly equalling the old variety in flavour; *Belle de Juillet*, ripening in July, larger and better than *Doyenné d'Été*; *Bon Vicar*, a fine autumn variety; and *Beurré Alexander Lucas*, a large and handsome November Pear, yellow and red, with a few spots, and of very good quality. Most of the novelties are continental varieties. All the trees

are on the Quince stock. The blossom out of doors was scanty, but Apples, on the contrary, were full of bloom, and as many acres are grown they made a fine display at the time our representative called.

— EXPRESS GRAPE FORCING.—In reference to the allegation that Grapes have been ripened in ninety days from starting the Vines, "Incredulous" wishes to know, first, if any of our readers have known the feat to have been accomplished before, and, secondly, he would like to know some of the quickest periods in which Grapes have been forced apart from Mr. Gilchrist's rapid action. Mr. J. Watson desires to say that he cannot, on the invitation of Mr. Brown, send Grapes over which he has no control. Our correspondent attended the last meeting of the Sunderland Gardeners' Society, expecting to see the grower of the Grapes, but he was not in attendance. Mr. Brown would like to obtain and send a record of the treatment to which the Vines were subjected that ripened fruit in ninety days after closing the house for forcing, but thinks the grower of the Grapes should himself answer Mr. Brown. The Vines are said to be thirty years old. It cannot be very difficult for Mr. Gilchrist to state the time the house was closed, with the dates of thinning, the commencement of colouring, and of cutting the fruit. He could also indicate the temperatures provided during the period of growth. This is the kind of information several of our readers require, and we will readily publish it if forwarded for that purpose.

— GARDENING SUNDRIES.—This is generally considered to be a pretty expressive term, but, writes a *Journal* representative, I only realised its full meaning when calling in at the city warehouse and show rooms of Messrs. Corry & Co., Ltd., the other day. As they do not supply retail customers their name is better known in the trade, where it stands high, than in private quarters; but as wholesale manufacturers and dealers in horticultural requisites of all kinds they have an important, though indirect, connection with the gardening community. Mr. Corry took me in hand, and before he had finished with me I was almost as bewildered as I was astonished at the enormous number of the articles kept in stock, and the quantity in which they are represented. Manures and insecticides are a great feature, and a specially fitted laboratory, with a qualified chemist, enables constant series of experiments to be made. Tobacco powder is sold by the ton, and tobacco liquor in various forms by thousands of gallons. The firm have the right of importing the leaf for insecticide manufacturing purposes duty free. They also supply almost every known insecticide. Special manures are sold in great quantities. Their speciality, Standen's, is well known to be one of the finest fertilisers procurable, and such popular plant foods as Clay's and Beeson's are sold very largely, with numerous others. Of lawn sand enormous quantities are distributed, while the same may be said of Lethorion Cones, Summer Cloud, Eucharis mite killer, nicotine soap, Ewing's mildew wash, hellebore powder, and Fowler's insecticide. A great feature is made of wreaths, crosses, plumes, grasses, rustic ware, tiles, and vases of different ware. All kinds of tools are kept, and syringes from the cheapest to the best. Hyacinth glasses fill numerous cases, but are now out of season. Flower stakes and wood labels are sold by millions. It would be impossible to enumerate a tithe of the articles stocked, but after traversing many spacious floors in the huge warehouses, all packed with goods, I came to the conclusion that it must be a tremendous quantity indeed, or a very peculiar article, that Messrs. Corry & Co. could not supply. Moreover, Mr. Corry was quite prepared to escort me to the Thames side, and show me over larger warehouses still for the purpose of "piling conviction on conviction's head," had that been necessary. All the firm's specialities and the general goods supplied by them are procurable from seedsmen in all parts of the country, but not direct by retail buyers. Very wisely, they do not attempt to serve two masters, and they enjoy the respect and extensive support of the trade.

INSECTS OF THE FLOWER GARDEN.

(Continued from page 235.)

THAT gardeners, and others, should have mistaken some of the species of *Andrena*, mentioned in my last article, for hive bees is not very wonderful; though the *Andrenæ* are rather more hairy, and they do not exhibit the self-importance which seems to characterise the hive bee. Some, indeed, are hairy enough to pass for dwarf specimens of the humble bee kind. Age tells upon bees quite as notably as it does upon mankind; many that are bright and yellow in their youthful days become hoary when

they grow older, and with some much of their hair gets rubbed off, making them almost bald. A curious-looking species, which is fond of making its burrow in a shrubbery where there is a sloping bank, is that named *Dasypoda hirtipes*, and a party of them often resort to the same bank. It is well furred with black, grey, and yellow, being also furnished with unusually large pollen brushes.

The second family of the bees is called the *Apidæ*, and its best-known representative is the hive bee of our island, and its various kinsfolk of distant countries. As the domestic bee has its history and doings chronicled in a distinct page of this *Journal*, I pass it here with brief remark. The fact has been verified by frequent observation that our hive bees, in their visits to flower beds, seldom go indiscriminately from plant to plant, but limit themselves on a tour to a few kinds. Again, though these bees gather the pollen for home use, and pack it carefully into the receptacles on their legs, they do a good deal in the way of free distribution. In their eager researches after honey, especially amongst certain species of flowers, pollen is thrown upon the body from the anthers, and then borne by the insects to other flowers, where it is scattered unawares upon the stigma. Or it may happen, as with the *Gladiolus*, that the anthers place the pollen in such a position upon the thorax of the bee that it is brushed off by the stigma of the same flower. Pliny, the old Roman naturalist, was the first to observe that the bees shunned certain flowers; he mentions those of the *Laburnum*, for example; but they sometimes gather honey from the blossoms of plants that are poisonous to man, not to themselves. Yet there are flowers which prove risky to some visiting them. Mr. Staveley, the entomologist, found that bees died as a result of having taken nectar from some varieties of the *Tulip*.

The cuckoo bees are not a tribe frequently seen about gardens. As their name implies, they do not seek honey or pollen to feed their young, but, like the familiar bird of our fields, they deposit eggs in the nests of others. Availing themselves of the store provided by more diligent bees, the cuckoos watch for an opportunity to effect their purpose, and then they close up with clay the cells in which they have intruded. Cuckoo bees are smallish, gaily coloured, rather wasp-like in movement. We pass from these to the *Dasygastræ*, named thus from the thick clothing of hairs which form a pollen brush on the under side of the abdomen in the female bee. The males are remarkable for having spines at the extremity of the body. Some of these in the genus *Osmia* are known as mason bees, from their habit of working in cliffs or banks, in old walls, or a tree stump; for variety also some of them excavate the pith of the Bramble, and form cells within a branch, which are distinct from each other. Some, too, fashion an abode for their young upon a wall, constructing it of a hard material that is their own manufacture. These nests outside have the appearance of a splash of mud. Food is always laid up by the careful mother, honey and pollen, sometimes a sort of cake, which seems a mixture of various substances obtained from plants or flowers.

We come now and then unexpectedly upon traces of an *osmia* in the garden. Picking up some shell of the too familiar garden snail, empty ones of which are not uncommon amongst moss or the roots of plants, we find it is filled up by something foreign. Inspection will prove that a bee has turned the shell into a nursery, putting five or six cells and sufficient food between the end of the whorl and the entrance; this, to keep out parasitic foes, she blocks as firmly as she can with clay or pebbles, joined by gummy matter. The skill which several species show in boring is remarkable, seeing that the jaws and legs have to deal with hard substances which might easily injure them. To the leaf-cutter bees of the genus *Megachile* we are indebted for the peculiarly cut holes to be noticed in the leaves of some garden plants about June and July. Roses, and especially the Sweet Briar, are much visited by them, but they do not touch the petals, though a foreign species has been found to use as a lining for its cells the scarlet petals of the Poppy. The circular holes made by these bees are quite distinguishable from the bites of caterpillars. One or two species, instead of biting these holes, scrape off from the leaves of woolly plants portions of the down, which is applied to the same purpose. A gallery or burrow is formed in the earth, and it is lined by portions of leaves carried to the spot by the bee, which are cleverly arranged, and the opening is similarly closed at the finish. Some of the leaf-cutter bees make the nests for their offspring in decayed wood. One of the bees in this group has received a Latin name which means "flower-sleeper," for at early morning the males especially are commonly found asleep in flowers, to which they have attached themselves by their jaws. All these bees, like their brethren, provision their nests with honey and pollen.

Another bee of this group gardeners have been recommended to encourage rather than drive off, as on the green lawn or grass plot its presence is enlivening, and it is not inclined to sting. This is the *Eucera*, notable for the long antennæ of the males, and they

are fond of assembling in little parties, flying rapidly over the ground with a pleasant hum. The females excavate burrows in company along the same bank or slope. Like the hive bee, the humble bee is social in its habits; yet the government is not a monarchy, but a republic. Every season these insects, the Bimbi, appear frequently in our gardens; their very sonorous hum never fails to let us know when they are about, and we are indebted to them, let us remember, for assisting to fertilise many flowers. It is needful to note this, because some have represented these insects as enemies both to flowers and fruit trees, owing to their having been caught in the act of biting holes in the blossoms. There is a reason for this. The size of the humble bee prevents it from entering some flowers that have long corollas, and instinct teaches it to obtain honey and pollen by making an incision. But only the petals of a few flowers are seriously disfigured, and the benefits conferred by the bee are more than equivalent. Still, it is also needful to state that though the humble bee is supposed by many people to be stingless, the females possess stings, which the stone humble bee (*B. lapidarius*) and the wood species (*B. lucorum*) are quite ready to employ, particularly if their nests are attacked.

These, however, are less noticeable in gardens than is the carder bee (*B. muscorum*), which is of gentler disposition, seldom showing fight even if its nest is intruded upon. This is placed upon the ground, occasionally amongst a mixed growth of plants; it may chance to be amongst grass only. It has a dome, and is well lined with moss and other materials, carded or "heckled" by the bees, the founder of each nest being a female that has hibernated, as amongst the wasps. Humble bees have nearly the same number of males, females, and neuters. A nest may contain from 200 to 300 individuals. Though honey is to be discovered in some of their nests, it is not advisable to eat it, for it is apt to cause severe headache, though its flavour is very agreeable.—ENTOMOLOGIST.

PARIS GREEN AND RED SPIDER.

REFERRING to the note on page 395 from Messrs. Blundell and Spence respecting using "pure" Paris green, I believe I am correct in stating that what I found so effectual in clearing a large Rose tree of maggots, or to be more precise, the caterpillars which are so snugly rolled up in the foliage, and which gnaw away at the Rose buds, was supplied by Messrs. Blundell & Spence to the experimental committee at Evesham in the spring of 1890 on the recommendation of Miss E. A. Ormerod. If there is any improvement since so much the better. It is now too late, I fear, to recommend its adoption to stay the damage already done, except to prove its efficacy with a view to be in time another season, at least a month earlier, when the caterpillars are young, and before the Rose buds are advanced beyond the foliage. The recommendation of Paris green for red spider on Gooseberry bushes and as a remedy for green fly opens a wide field for discussion.

I can speak from personal observation on seeing a large plantation of Gooseberry bushes freed from red spider by using a solution of Paris green and water, but I was not so sure in my own mind whether it was the water or the Paris green which should have the chief credit, although Paris green had it by the grower. The subject is well worth working out by experiments. I know I can clear my bushes with pure pump water without any risk through spraying a poisonous substance on the fruit. At the present time I think it would be suicidal to our objects to recommend Paris green on fruit or Gooseberry bushes. The question arises, Do red spiders actually eat the leaves or only suck the sap, and produce that sickly unhealthy appearance? My idea is they simply live on the juice or sap; the leaves are not eaten, as in the case of caterpillars. If they actually take in the poison of Paris green, has it first been imbibed into the sap of the plant? The same inquiries apply even more distinctly in the case of green fly. We know, without doubt, that they live by suction. Or does Paris green kill by bodily contact, as in the case of soapy mixtures, paraffin, &c. I have made microscopical examinations of both leaves and insects infested with red spider and green fly, but I have not the time to devote to the working-out of the problems suggested.—J. HAM, *Astwood Bank, Redditch*.

HEUCHERAS.

To come in with the lion and go out with the lamb seems to be the fate in store for the loveliest of the Heucheras, *H. sanguinea*. It was collected about a dozen years ago by Dr. Murray in the Porphy mountains of Llanos. He brought home five living plants in an open basket, and from these the hundreds of thousands in commerce at the present time have been obtained. It is still said to be the finest introduction of recent years, and such also is my opinion, in spite of the difficulty one has in getting anything like an annual show of flowers from the old type. Everyone has the same complaint to make; it flowers for a year or two all right, but nothing will induce it to continue blooming in the same spot, and there seems nothing left but to seed it and raise fresh

stock. The seedlings, however, are most variable, and we have seen nothing with the brilliant flowers of Dr. Murray's original, although a good many at Kew are taller, much freer, and with larger bright rose-coloured flowers. There can be little doubt that out of these seedlings will evolve one of our very finest herbaceous border plants. They are as



FIG. 75.—HEUCHERA SANGUINEA SEEDLING FROM THE KEW COLLECTION.

a rule much more robust, never fail to give abundance of flowers, the blooms are larger, more numerous, and altogether more effective. Kew seems to have hit on a good strain, amongst which we also notice one with pure white flowers, dainty in its way, but by no means so showy as the other seedlings.

The Heucheras as a whole are not garden plants, only three species,

besides *H. sanguinea* known to us, being worth growing—*H. glabra* and *H. micrantha*, for their elegant loose panicles of small whitish or pinkish flowers, and *H. hispida* (*H. Richardsoni* of gardens) for its beautiful satiny foliage. All these species are most suitable for half-shady spots on the rockery, and with an occasional lifting and breaking-up will last a long time. *Tiarella cordifolia* is an allied plant, and when allowed to scramble at will on the rockery I know of no prettier alpine for early summer. It is readily increased by division of its runners, which are produced freely in open soil.

The subject of the illustration (fig. 75) may also be increased by division, and if grown in a free peaty soil will be found to flower more freely than in the ordinary garden soil. It should be lifted annually, the clumps torn to pieces and replanted, single crowns only being used. Or it may be struck from the cuttings so freely produced on the old stems. We are, however, best satisfied with the seedlings, the trouble of weeding out the bad forms being nil, and the variety most diverse both in habit and flowers.—DAISY.

MIGNONETTE MACHET.

It is a wonder that private gardeners do not grow this grand variety more extensively in pots, considering the robust habit of the plants and the splendid spikes of delightfully scented flowers they are capable of producing. In my opinion it is the best of all varieties for growing in pots, and if managed in the right way its culture is extremely simple.

When making a call on Mr. J. Kitley, at Warwick, a few weeks ago, I noticed a grand batch of this variety of Mignonette. The plants were dwarf and robust, were clothed with thick, rich green leaves, and carried dense heads of very large spikes. Market men have long been famed for the production of Mignonette having these characteristics, but unfortunately private gardeners have not, as a rule, succeeded in growing it so well. In many cases this is due to a want of proper house accommodation during the winter months, in others through not having yet adopted the right method of procedure. Mr. Kitley having kindly given me the particulars of his practice I concluded they would be both useful and instructive to readers of the Journal, hence this note.

The seed is sown during the first or second week in August, a compost of three parts good loam, one of well decayed manure, and a little lime rubble being used. They are best sown in the pots they are to occupy when in flower, three or four seeds being placed in the centre of each, and covered with a thin layer of soil. The pots used are the ordinary 5-inch size, one crock being placed over the aperture at the bottom, and a layer of half-inch bones placed over this, a little rough material being added to keep the soil from clogging the drainage. The compost is used in a rough state, and is rammed down very firmly; a little is sifted through a quarter-inch sieve to spread on the surface and sow the seeds upon. After sowing the soil is watered, the pots placed in a frame and kept shaded till the seedlings appear, when shading is gradually discontinued. As soon as the seedlings are large enough to handle the strongest are selected and the others removed, leaving only one to each pot. The pots are at this stage stood upon a shelf in a cool span-roofed house, where the plants are within a few inches of the glass.

An important stage in their culture has now arrived, and upon the practice adopted success or failure in a great measure depends. The cardinal point to be observed is this. As soon as the plants have made two or three pairs of leaves pinch them down to the surface of the soil, leaving only one pair of leaves. This will cause side shoots to be freely produced, and will ensure a dwarf and compact habit. No further pinching is required. Throughout the winter the plants are kept in the same position, the stages underneath being occupied with bedding Pelargoniums. Just enough heat is given to keep out frost, and plenty of air is afforded on all favourable occasions. In fact, the treatment in this respect which the Pelargoniums require is equally suitable for the Mignonette. By the time the plants have grown so near to the glass as to render their removal necessary—which is generally in February—the Pelargoniums are removed from the side stages, and the Mignonette placed thinly upon them, where they gradually develop into the grand plants we see at the present time.

Watering is an important item in the culture of Mignonette. Water should be very sparingly given during the winter months, as roots are not then very numerous, and the soil being rammed very firmly is tenacious of moisture. When the bright days of spring come, and both root and top growth increase rapidly, rather

copious supplies are required. By the time the flower spikes show weak soot water is given at each watering, and an occasional dressing of artificial manure.—H. D.

ROYAL HORTICULTURAL SOCIETY.

JUNE 7TH.

THE Drill Hall was fairly well filled on this occasion, thanks in no small measure to Messrs. Kelway & Son, who exhibited Pæonies and Pyrethrums largely, and to Messrs. W. Paul & Son, who had an extensive display of Rhododendrons. Orchids were also well represented.

FRUIT AND VEGETABLE COMMITTEE.—Present: Philip Crowley, Esq. (in the chair), Messrs. W. Warren, G. Taber, J. Cheal, G. Bunyard, H. Balderson, A. H. Pearson, A. Dean, D. Morris, J. H. Sage, J. Wythes, Harrison Weir, and Rev. W. Wilks.

The best exhibit placed before this Committee was a box of Lord Napier Nectarines sent by Mr. J. Hudson, Gunnersbury House. The fruits shown were of large size and splendidly coloured. A silver Banksian medal was recommended. A basket of Peaches named "Amsden June" was shown by Mr. J. Wythes, Syon House, Brentford, and an award of merit was adjudged. The samples exhibited were well coloured, and were said to have ripened within fifteen weeks from the date of starting the trees. A. Pears, Esq., Spring Grove House, Isleworth (gardener, Mr. F. J. Debnam), staged a dish of well-coloured Dr. Hogg Peaches, for which a cultural commendation was awarded. A new Melon named Spring Grove Hybrid, a cross between Hero of Lockinge and Scarlet Premier, was also shown by the same exhibitor, but was not specially noticed by the Committee. Melons were also shown by T. W. Drake, Esq., Sharpleoos, Amersham, Bucks (gardener, Mr. J. Thomas); Mr. Bowerman, Hackwood Park, Basingstoke; Mr. S. Ely, Nettlebed, Henley-on-Thames; and Dr. Falkland, Reigate Hill, Surrey. The last-named exhibitor showed a new green-fleshed Melon named Riding's Perfection, for which an award of merit was adjudged.

Vegetables were few in number. Mr. W. H. Castle, The Gardens, Castlemas, Twyford, sent a box of well grown Cucumbers, a cross between Sutton's Prizewinner and Lockie's Perfection. Mr. Wythes, Syon House, showed a bunch of Extra Early Milan Turnip, and a vote of thanks was accorded. Four varieties of Spinach from the Royal Horticultural Society's Gardens were shown, these being Round, Longstander, Prickly Flanders, and Thick-leaved Round. Rhubarb Victoria and Ryder's Perfection, came from the same source.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), Messrs. R. Dean, H. Herbst, C. F. Bause, H. B. May, C. T. Druery, R. B. Lowe, B. Wynne, J. Fraser, H. H. D'Ombrian, G. Paul, C. E. Pearson, H. Turner, J. Phippen, and E. Mawley.

The exhibits placed before this Committee, although not numerous, were of a bright and interesting character. Messrs. Kelway & Sons, Langport, sent a large collection of Pæonies, Pyrethrums, and Amaryllises, for which a silver-gilt medal was recommended. The Pyrethrums were very bright, and comprised double and single varieties of sterling merit. A fine double dark variety named Alfred Kelway was adjudged an award of merit, and a white single variety designated Princess Marie was similarly honoured. Both are described below. Other noticeable varieties were Prince Ferdinand, Sir Hugo, Duchess of Teck, and Evelyn. A silver Flora medal was recommended to Messrs. W. Paul & Son, Waltham Cross, for a splendid collection of Rhododendron blooms, comprising some sixty varieties. The flowers were particularly showy, and having been cut from shrubs growing in loam were all the more interesting. Messrs. Paul & Son also showed plants of their Hybrid Perpetual Rose Clio. Messrs. Dobbie & Co., Rothesay, had a charming display of Violas, Pansies and Sweet Peas, for which a silver Banksian medal was recommended. The best decorative Violas shown included Joy, Blue Cloud, Max Kolb (a rich purple), Lucy Ashton, Peacock, and Archibald Grant. Several new seedling Violas were also shown by Messrs. Dobbie & Co.; and J. Donaldson, Esq., Tower House, Chiswick (gardener, Mr. T. Bones), showed three distinct Oxinias, two of which were deemed worthy of awards of merit. These are referred to below. Mr. Donaldson likewise exhibited a yellow Carnation, for which an award of merit was adjudged.

Messrs. G. Paul & Son sent a small collection of alpine and hardy plants, which comprised Irises, *Ramondia pyrenaica*, *Geum minimum*, *Dianthus annulatus*, and a new species of Rose from the Rocky Mountains. The Rose bears a resemblance to *Rosa rugosa*, and is said to be quite hardy. A silver Banksian medal was recommended. Mr. J. Hudson, gardener to Messrs. de Rothschild, Gunnersbury House, showed a stand of *Ixoras Fraseri* and *I. Westi*. The last-named is a magnificent variety, and was awarded a first-class certificate. It is referred to elsewhere. Messrs. F. Sander & Co., St. Albans, sent *Dipladenia atropurpurea* var. *Clarkei*, for which a first-class certificate was awarded. Blooms of *Gladiolus byzantinus* were shown by the Rev. W. Wilks, Shirley, and an award of merit was adjudged. Mr. Robb, Chitley Farm, Liphook, sent a plant of the "Moonlight Broom," a pale yellow flowered variety free in blooming; and plants of *Tagetes Little Gem*, a dwarf variety, were shown by Mr. R. Frisby, Worden Hall, Preston.

In the competitive classes for twelve hardy Rhododendrons, three trusses of each, the Duke of Northumberland, Syon House, Brentford (gardener, Mr. G. Wythes), was first. Among other varieties in this collection were Lady Eleanor Cathcart, Lady Dorothy Nevill, Mrs.

R. S. Holford, and Kate Waterer. The second prize in this class went to the Earl of Dysart, Ham House, Richmond (gardener, Mr. J. H. Sage). The first prize (Kelway silver medal), for six single and six double Pyrethrums, was awarded to Lord Wimborne, Canford Manor, Wimborne (gardener, Mr. Crasp), for a meritorious collection.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), Messrs. Jas. O'Brien, H. M. Pollett, H. Ballantine, T. W. Bond, E. Moon, J. Douglas, W. H. White, T. B. Haywood, and A. H. Smee.

Messrs. Hugh Low & Co. had a collection of *Cattleya Mossiæ* comprising several good varieties, notably *Cyntha*, which was noteworthy by its white tube. F. W. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. W. H. Young), had a small but interesting exhibit, including *Lycaste aromatica*, flowering from the top of the bulb; *Cattleya Schilleriana*, *Cypripedium Veitchianum*, *C. Rothschildianum*, *Cattleya Mendeli*, Clare Lawn variety; and *Dendrobium Falconeri giganteum*. C. J. Lucas, Esq., Warnham Court, Horsham (gardener, Mr. G. Duncan), had *Lælia grandis tenebrosa*, Warnham Court variety (award of merit, see below); *Promelia* (?) *zanthina* or *citrina*, a charming little yellow Orchid (botanical certificate); *Dendrobium MacCarthiae*, beautifully flowered (cultural commendation); *Epidendrum odoratissimum*, and an *Eria* species. G. Ingram, Esq., Elstead House, Godalming (gardener, Mr. Bond), sent *Lælia-Cattleya Canhamæ*, a hybrid between *Cattleya Mossiæ* and *Lælia purpurata*, and *Cymbidium Loise-Chanvieri*, green and white, which reminds one of *Cœlogyne pandurata*, but with much reflexed sepals (botanical certificate). Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (grower, Mr. White), sent *Oncidium loxense* well flowered; *Dendrobium Parishii albens*, *Bulbophyllum elegans* (botanical certificate), *Odontoglossum Pescatorei* Prince of Orange, and *Masdevallia Shuttryana* (*Shuttleworthii* × *Harryana*), Messrs. de Rothschild, Gunnersbury House, Acton (gardener, Mr. Hudson), exhibited twenty-four flowers of *Lælia purpurata superbiens* cut from one plant. R. B. Cater, Esq., Westfield, Bath (grower, Mr. Tanser), sent *Cattleya Mendeli Catersiana*; and the Right Hon. J. Chamberlain, Highbury, Birmingham (grower, Mr. Burberry), a collection of *Cattleyas*. A charming group came from W. Furze, Esq., Roselands, Teddington (gardener, Mr. Coombe), very tastefully arranged, and a silver Flora medal was awarded. Messrs. F. Sander & Co., St. Albans, had *Cattleya Forbesi* Sander's variety, *Oncidium Lanceanum*, and *Cattleya Arnoldiana* (*Cattleya Mossiæ* × *Lælia purpurata*), a hybrid with a very richly coloured lip, for which they received a first prize.

J. W. Temple, Esq., Leyswood, Groombridge (gardener, Mr. E. Bristow), exhibited *Cattleya Warneri Leyswoodensis*, a variety of great size and richly coloured; also *C. Mossiæ* var. *striata*, *C. M. marginata*, *C. Mendeli gigantea*, and a variety of *C. Mossiæ* with the lower sepals, instead of being of the usual blush shade, coloured precisely the same as the lip. This was the first time it had flowered, and the Committee asked to see it again another year. L'Horticulture Internationale, Brussels, sent *Warscewiczella Lindeni* (first-class certificate, see below), *Odontoglossum Lucasianum*, *Oncidium auriferum*, densely furnished with small yellow flowers (botanical certificate), *Coryanthes leucocorys* (botanical certificate), *Cynoches peruvianum*, and *Stanhopea eburnea*. H. Shaw, Esq., Ashton-under-Lyne (gardener, Mr. Cliffe), had the white *Cattleya Mendeli Shawiana* and a collection of cut blooms. Baron Schröder, The Dell, Egham (grower, Mr. Ballantine), sent *Odontoglossum Dellense*, O. Wolstenholm, and O. *crispum* Rex. The two latter received awards of merit, and are referred to below. The Duke of Northumberland, Syon House (gardener, Mr. Wythes), sent a beautiful box of cut blooms, and to these was awarded the first prize offered for a collection, the second going to Mr. Ingram. Mr. Wythes also exhibited a miscellaneous collection, for which he received a bronze medal. Mr. F. Bridger, Penshurst, sent *Dendrochilum latifolium*.

CERTIFICATES AND AWARDS.

Pyrethrum Alfred Kelway (Messrs. Kelway & Son).—This is a grand double variety, with medium sized flowers. The guard florets are of a magenta shade, and the centre a bright rosy crimson (award of merit).

Pyrethrum Princess Marie (Messrs. Kelway & Son).—This is a single variety, with pure white florets and bright yellow disk.

Gloxinia Ensign (Mr. J. Donaldson).—The blooms of this are large and very distinct. The throat is spotted with purple. Rich purple, margined with white (award of merit).

Gloxinia The Beacon (Mr. J. Donaldson).—A remarkable variety, with self-coloured rich crimson flowers of medium size (award of merit).

Carnation Yellow Queen (Mr. J. Donaldson).—This is apparently a useful decorative variety, with pale yellow flowers of medium size (award of merit).

Ixora Westi (Mr. J. Hudson).—This is a splendid variety, producing remarkably fine trusses of a charming pink shade (first-class certificate).

Gladiolus Byzantinus albus (Rev. W. Wilks).—A white variety of the common garden *Gladiolus*, and said to be perfectly hardy. According to statement shown with the blooms, "It was discovered by the Rev. E. Arkwright, and sent by him" to the Rev. W. Wilks, "who has grown it in the open border at Shirley" (award of merit.)

Dipladenia atro-purpurea var. *Clarkei* (Messrs. Sander & Co.).—A rich dark-purplish maroon variety, very distinct in colour, and with small leaves; it is apparently a free bloomer (first-class certificate).

Lælia grandis tenebrosa, Warnham Court variety (C. J. Lucas, Esq.).—A very handsome variety, sepals and petals light bronzy brown with rosy purple veins, the base suffused with magenta. The lip and

throat, except for the bright mauve tip, were deep velvety purple (award of merit).

Cypripedium Alice (Messrs. Drewitt).—A garden hybrid, *Spicerianum* × *Stonei*, very distinct. The lip is purplish brown edged with yellow. The dorsal sepal, which is incurved and arching over the pouch, is soft blush, flecked with rose; the back, which shows the most conspicuously, being deeply flushed with rosy purple. The petals are narrow, long, and much twisted, greenish yellow, thickly dotted with purple (award of merit).

Warscewiczella Lindeni (L'Horticulture Internationale).—This is a charming Orchid with a very broad lip, pure white, lined with purplish mauve, sepals and petals white. It resembles *Miltonia vexillaria* in growth (first-class certificate).

Odontoglossum crispum Rex (Baron Schröder).—A beautiful variety, the centre of the petals and sepals being broadly blotched with deep reddish brown, and suffused with magenta. The lip is also blotched with brown (award of merit).

Odontoglossum crispum Walstenholm (Baron Schröder).—This variety is, like the other, heavily blotched, but the markings are much lighter in hue than those in that variety, being pale brown (award of merit).



THE PROVINCIAL SHOW OF THE N.R.S.

WE understand that owing to local circumstances it has been necessary to alter the date of the National Rose Society's meeting at Chester from July 14th to Saturday, July 16th.

JUDGING ROSES.

VERY interesting has been the discussion on judging Roses in recent issues of the *Journal of Horticulture*. The main question appears to resolve itself into a proposition of absolute perfection on the one hand and degrees of excellence in Roses on the other. Mr. George Paul appears to be the most pronounced absolute perfectionist, and Mr. Raillem is clearly the leader on the other side. This, in my opinion, is the winning side. It represents what is practical, the opposite representing the idealistic.

Mr. George Paul is a bold man, for he says in effect, if not in words, that a Rose which has lost some of its colour is "bad," even if no fault can be found with its form or size; also and naturally a Rose defective in form is "bad," though in size and colour it may be admissible. Is a Rose to be condemned because it shows two good properties and lacks one? Hundreds of Roses are exhibited which have lost some colour, yet they may be fairly described as "good," but not perfect. Are, then, their predominating merits to be overlooked or ignored?

There are degrees of excellence in all flowers, and they must be recognised by adjudicators. Freshness, whether as represented by brilliancy or purity in Roses, tells powerfully in their favour; but if a Rose is to be regarded as "bad" that has to some extent faded we shall have stands of little more than buttonhole buds winning first honours, and much better formed and better grown blooms passed if they do not happen to be in the perfection of colour.

Acting on the principle of crediting blooms with the points of merit that are apparent, taking due note of obvious faults, I have had the pleasure of assisting in awarding first prizes to Mr. Paul's stands even when others somewhat fresher, but much too small to do justice to either the varieties or cultivators, were in competition, and he did not complain. Colour forces its full claims as the work of judging proceeds, and then when the pointing happens to be equal the freshest stand, sometimes not easy to determine, has the casting vote.

Though I think Mr. Raillem is right in recognising degrees of excellence in Roses as represented by colour, form, and size, I think he is wrong in his advocacy of one inflexible standard for all varieties. Their characteristics must be kept in mind, otherwise a small and decidedly "bad" Charles Lefebvre would be better than a really "good" Duchesse de Caylus. I cannot presume to enrol myself among judges of national fame, but I have a fair claim to entitle myself—AN OLD SHOWMAN.

[We are requested to say that Mr. George Paul had carefully read the correspondence before giving his opinion on the subject of colour in Roses on page 391.]

A NOTE ON GRIMSTON PARK.

IN passing through a well-known Yorkshire garden, namely, Grimston Park, I was much struck with the decorative value of Hydrangeas, and perhaps a short description of them would not be out of place. The cuttings are struck in autumn, and when they are fully rooted and have made some growth the points are pinched out, and the result is several breaks from each stem. The plants are grown generously, and during the following summer they are plunged under a north wall until autumn, when they are taken inside and are got into bloom in the early spring. The plants, when I saw them, were furnished with from six to twelve trusses of bloom each, not cultural monstrosities, but about six

inches in diameter, and as the plants were in 5-inch pots they were very useful for many purposes.

While writing on the above subject I should like to add that I have heard a rumour that there is to be a gathering of Paxton Societies, or to be more explicit, Gardeners' Mutual Improvement Societies, at Grimston. If this could be brought about I think that the members of the various societies would be well rewarded for a journey there, as the gardens under the able supervision of Mr. Clayton are in the highest state of excellence, a walk through them being a source of much pleasure. Passing through the fruit houses, of which there is a long range, the Vines and Peaches evoke admiration. Pines are grown and show evidence of good cultivation, as also do the Melons, of which there is a splendid crop. Figs and Strawberries receive good attention. Going from the fruit to the plant houses and conservatory one cannot help but admire the health and vigour of their contents. Ferns and Orchids are well grown, and it is almost impossible to single out anything for individual praise, as everything seems to be done well that is worth growing both indoors and out. I have no doubt that visitors would have a cordial welcome both from Mr. Clayton and his courteous assistant, Mr. Snell.—EBOR.

VINE MANAGEMENT.

THE remarks of "E. M." on page 371 contain many useful hints, and, as he points out, there are few gardeners who are able to train their Vines 2 or 3 feet from the glass on account of the houses not being built high enough. It is, however, a great advantage to be able to do so, and one which is often overlooked where the necessary light is provided. I have in my mind at present an instance of this, where the Vines might with advantage to all concerned be trained fully 6 inches further from the glass at the front of the house, and considerably more than that at the apex. There are but few vineries in which it would be difficult to allow the shoots more room at the top, for it is by no means imperative for the trellis to be fixed at the same angle as the roof. If it is necessary to have this fixed 17 inches from the glass at the bottom the distance could be gradually increased to 24 or 30 inches at the top. This is an advantage in many ways. One is that the apex of a vinery being the hottest part of it the Vines are much benefited by being trained further from the glass at that point, and are less liable to the attacks of red spider in bright weather, and the nearer they are to the floor the easier it is to attend to the operations of stopping, tying, and thinning. I would, therefore, strongly advise all who have the fixing of trellises in vineries for the future to allow as much distance from the glass as the height of the house will allow, and those who have to deal with Vines trained rather close to the glass, when tying down very strong shoots, should take the additional precaution recommended by "E. M.," of fastening bands of tying material round the base of the young shoots.—H. DUNKIN.

FALKLAND PARK, SOUTH NORWOOD HILL.

THE mansion, a noble pile, newly built, occupies a fine site. From the tower may be obtained grand views of the Surrey Hills and an extensive range of surrounding country. In an old house on the estate, of some 33 acres, lived the late Admiral Lord Falkland, whose descendant, the twelfth Lord Falkland, sold it to the present owner, T. McMeeken, Esq. Extensive alterations and improvements of the grounds have been and are still being carried out under the able direction of his gardener, Mr. A. Wright, who won his spurs at Devonhurst, Chiswick, a spot famous at one time as the fine old arboretum of the R.H.S. The parterre in front of the mansion is partly planted with shrubs and specimen Conifers. Other beds will be filled in their seasons with spring and summer flowering plants. The rock garden, which will be a pretty feature when established, is planted extensively with hardy Heaths, Menziesias, Andromedas, Kalmias, and Mezereums. Adjoining large beds of herbaceous plants in bold clumps are being planted.

In the American garden features are made of Rhododendrons in all the best named varieties, Ghent Azaleas intermingled with Daffodils, Lilies, Crocuses, Snowdrops, and varieties of dwarf herbaceous plants. A rookery, at present planted with the different species of Saxifragas, to be eventually overrun by Honeysuckle and Clematis, is a pretty feature. The conservatory, a noble structure, built by Messrs. Mackenzie and Moncur, is just now being planted with the choicest of climbers suited for such structures. Here, prettily arranged in a recess, is a fine example of rockwork by Mr. Pulham, which will be planted with Ferns, *Ficus repens*, *F. minima*, foliage Begonias, and other suitable subjects. A fine corridor, some 270 feet in length, connects the range of plant houses just alluded to. The corridor is very effectively planted with foliage and flowering plants on each side, giving it a most attractive appearance amongst the climbers draping the sides. Specially noticeable was the too seldom seen *Solanum jasminoides* wreathed with its whitish flowers, *Cestrum* (*Habrothamnus*) *elegans*, and *C. Newelli*. Referring briefly to the occupants of the houses, Azaleas in 8, 10, and 12-inch pots were flowering profusely, and formed a strikingly effective feature. I refer to a few only of the best. King among the whites was Apollon, an immense flower of the finest shape, and very free. A good double white is Deutsche Perle, a very early variety. A fine rose banded with pure white is Empereur du Brésil. Souvenir d'Arthur Veitch is a very large single, superb salmon-crimson. Punctulata is very

double, rosy orange; and Roi d'Hollande, orange, with handsome saffron spot is a large flower of fine form and rich colour. *Polygala Dalmatiana*, reddish-purple pea-shaped flowers, free, was represented by a pair of fine standard plants. Some splendid varieties of *Clivias* are grown with wide sepals and petals, bold flowers, and good colours. Amongst hard-wooded plants mention should be made of *Acacia grandis*, specially well-flowered *Epacris* and *Heaths*.

A good collection of Orchids is being formed, and another house will soon be built to accommodate those of the cool section. A very fine variety of *Cattleya labiata* (from an imported bulb), rich in colouring, was flowering well. Amongst others blooming were a plant of the old *Dendrobium nobile* bearing from 200 to 300 flowers; *D. densiflorum*, with massive pendent spikes; *Odontoglossum cirrhosum*, the somewhat rare *Cattleya Schrödera*, *Odontoglossums* in var., *Lælias*, and others. In foliage plants very worthy of mention are *Anthurium crystallinum*, *A. Warocqueanum*, *Acalypha tricolor*, and fine examples amongst Palms of *Kentia Forsteriana*, *K. Belmoreana*, *Latania borbonica*, *Areca sapida*, *A. lutescens*, *Phoenix rupicola*, *P. canariensis*, *P. reclinata*, and *P. dactylifera*. Ferns are well grown, and are represented by some vigorous examples, such as *Nephrolepis davallioides furcans*, *N. tripinnatifida*, *N. hirta cristata*, *Cibotium Schiedeii*, *Pteris tremula Smithiana*, *P. Mayi*, and *Davallia dissecta*, 4 feet in diameter. Specimen Tree Ferns have splendid heads and are making fine growth. Some excellent specimens of pyramidally trained Bay trees in a house give it a furnished appearance. The kitchen and outdoor fruit gardens are being cropped, and a range of fruit houses will ere long be erected and thus give a finished aspect to the whole.—J. B.



HARDY FRUIT GARDEN.

STRAWBERRIES.—Where the mulching material has been applied between the rows for some time it may have become too decayed, especially if wet weather continues for any length of time, to afford sufficient protection to the fruit. When this is found to be the case lose no time in applying a fresh layer of strawy material or short clean cut straw or chaff. The latter is excellent for thwarting slugs, but the manurial mulching possesses fertilising properties which are beneficial to the roots when washed down by the rains. Applications of liquid manure in the shape of stable or cowhouse drainings, soapsuds, soot, or guano water, or even clean water, are all beneficial. When in bloom and swelling its fruit the Strawberry will absorb any amount of nutriment. Do not waste any fertilising material, whether natural or artificial, by applying it to nearly exhausted plants. These, if fruiting at all, can have one good mulching and watering, then be left to produce what fruit they may, which will do for minor purposes or preserving.

Young plantations of Strawberries always show flower however small the plants. It is not advisable to retain the flowers on these unless they are very strong and vigorous. Any plants that do not show bloom, especially if large, uproot at once, as they will probably be constantly barren. Also keep runners closely cut away from plants intended for fruiting next year. It is best to depend only upon those runners for furnishing the next year's plantations procured from vigorous fruiting plants of one year old. Fruit advancing to ripening must be protected from slugs. Tiles, slates, and pieces of glass are useful to place under the fruit.

SUMMER PRUNING FRUIT TREES.—This important operation for encouraging and continuing fruitfulness in restricted fruit trees, such as those growing in various shapes against walls, espaliers in the open, pyramids and dwarf bushes, now begins to claim the attention of the cultivator. Growth progresses fast, producing a wide area of foliage, which will, if not properly restricted, drain away the most important resources of the trees. Summer stopping, therefore, with the majority of trees cultivated and trained on any restricted methods becomes a necessity to attain to the highest points of culture. Judiciously carried out it affects the regular flow of the sap to every part of the tree, and neutralises any tendency to grossness by avoiding confusion of growth, except when powerful roots have struck down deeply into the subsoil, rendering the vigour of such trees too luxuriant to be suppressed by summer-pruning. Where this is found to be the case root-pruning in early autumn is the best remedy.

Commence stopping when the lowest pairs of leaves, not counting those small basal leaves nearest the branch, have attained to full size. The upper parts of the trees, where the strongest foreright shoots generally are produced, claim attention first, the strongest taking precedence over the weaker. A difference in the manner of stopping various shoots is adopted with good results, those of luxuriant and medium growth being stopped closer or just over the fourth leaf, while weaker shoots are allowed a little more latitude, being stopped over the sixth leaf, full sized in all cases.

It is not desirable to hurry over and complete all the summer pruning at one time. It is more conducive to healthy growth and

vigour to watch the trees, removing superfluous parts at short intervals as it is seen the shoots become quite ready and strong, until all have been shortened. Lateral growths will push during the summer from the tips or upper buds of the shortened shoots; these are pinched back to one leaf when that has attained to its full size, subsequent growths being treated in a similar manner. This treatment causes the lower buds to become plump, eventually assuming the character of fruit buds, to one or two of which the shoot is shortened in winter. Apples, Pears, Plums, and Cherries (except the Morello) are pruned thus in summer, though many Cherry and Plum trees on walls are allowed to carry in addition some unstopped shoots for which room can be found for nailing or tying in.

When trained on walls or fences Red and White Currants and Gooseberries are summer-pruned, or they would soon become too crowded. Pinch off the ends of the young shoots above three pairs of leaves when these have attained full size, subsequent growths to one leaf. Wherever growths are seen to be crowded in standard trees some of them may be removed entirely, those left being benefited by the extra space, and the freer admission of light and air.

OUTDOOR FIGS.—Thin out the young shoots of Fig trees, but do not shorten them, as upon the points of these the fruit is borne the following season.

OUTDOOR VINES.—It is as necessary to regulate the growths of Vines outside as it is under glass. Only allow sufficient young wood or canes to extend for which room can be found. Stop fruitful shoots two joints beyond the bunch; those without fruit to the fifth or sixth joint. If room can be found for laying in a few young canes, stopping them at lengths of 2 to 4 feet, or even longer, they would be productive next year if well ripened, but not if crowded or shaded too much. If bunches of fruit set well thin the berries to secure finer fruit.

PEACHES AND NECTARINES.—Complete the thinning of the shoots and tie in the reserved wood carefully. Continue thinning the fruit where it is at all crowded or misplaced. Syringe the trees vigorously every fine warm afternoon, using tepid water to dislodge insects and prevent their gaining a foothold upon the trees. Any shoots that become suddenly infested with green or black aphides dust with tobacco powder or dip in a solution of soapy water coloured with tobacco liquor. Curled or maggot-infested leaves found chiefly on Apricots cut off and burn. Shoots attacked by mildew dust with sulphur from a perforated tin box.

FRUIT FORCING.

VINES.—*Late Houses.*—There must not be any delay in thinning late Grapes. Gros Colman, Gros Guillaume, and Trebbiano have the ovaries so pronounced and are so free setting that they may have what would be the worst berries if left taken out and the thinning completed whilst they are in flower. This secures all the swelling possible in those that are left, and the berries attain to an enormous size if care is taken to leave no more than can swell properly. They should not be less than an inch apart, and Gros Colman, also Gros Guillaume, not large bunches, often need to be $1\frac{1}{4}$ to $1\frac{1}{2}$ inch apart, as they have berries in proportion to the size of the bunches and number on the Vine. It is also a good practice to go over varieties that are thickly set with flowers, whilst the latter are in the "cap" state, and cut out at least half. It helps Lady Downe's, Mrs. Pince, and Alnwick Seedling to set if the precaution is taken to cut out the flowers that are weakest and have the thinnest footstalks and smallest "caps." This may also be practised on Alicante, which sets about six times as many berries as there is room for to swell to their full size, asuming they attain the proportions duly thinned berries do. These are tedious processes, and may seem impracticable on a large scale; but it is just as easy to thin the flowers as the berries. In order to secure large and highly finished berries it is well worth attending to, and they are not to be had without thinning well. Oval-berried varieties require less room than the round ones, but all must be thinned so that they will have room for swelling fully without wedging, and yet be so close as to retain the form of the bunch when dished. The thinning of the shy-setting varieties should be deferred until it is seen which berries are properly fertilised by their taking the lead in swelling. This applies to the true Muscats, of which there are only two—namely, Muscat of Alexandria and Black Muscat (Muscat Hamburg), the others being sub-varieties or not Muscats at all. Bunch-thinning should have early attention, reducing them to the number which their size and the condition of the Vines warrant as likely to finish satisfactorily. One pound of Grapes per foot of rod is a fair average crop, but that must be taken in regard to the distance the rods are apart, for Vines at 3 feet apart would be heavily burdened at that rate, and perhaps not finish the Grapes, whilst those $4\frac{1}{2}$ to 5 feet apart would produce clusters as large in berry as they are highly coloured and finished. Muscat of Alexandria may have poor clusters at the latter distance, whilst those on Vines 6 or 7 feet asunder furnish grand specimens. Length of rod is no criterion of the producing capabilities of the Vine, for that is entirely regulated by the amount of foliage in the best condition exposed to light and air, and due supplies of nourishment of the essential kind furnished at the proper time in the correct amount. One pound of Grapes to every 3 feet superficial of foliage exposed to every ray of sunshine is a full, but with proper feeding, not an overburdening crop. Regard must, however, be had to the variety. Muscat of Alexandria will not produce anything like the same weight of Grapes as Alicante on an equal spread of Vine, nor White Frontignan give half the product in pounds of Grapes as Gros Colman from an equal area. To get quality the Vines must not be

overcropped, for such never finish the Grapes well, and the latter keep very indifferently.

Late Vines are gross feeders, and require abundant supplies of water, with liquid manure or surface dressings washed in to carry full crops to perfection. A light mulching of sweetened horse droppings or cow-dung where the soil is light will keep the the surface moist if it is properly damped, and the roots will be attracted by the moisture and food instead of driven through drought and poverty at the surface to seek supplies by descending to the depths of the border. It is hardly possible to overwater inside borders that are well drained. A 4-gallon watering potful per square yard once a week will be necessary in bright weather where the Vines have a good run of border, and twice as much where the root space is limited to small areas. Outside profit more than inside borders, because the rain water is more nourishing than any other through its containing food elements, and the recent rains are sending forward the Grapes that are swelling. A light mulching of short stable manure will help to enrich the soil and retain the moisture of the border.

If the weather is cold fires will be necessary to keep the Grapes steadily swelling. All late Grapes, except late Hamburgs, thrive best in a high temperature with plenty of atmospheric moisture. The thing is to admit a little air early in the day, and a chink at the top of the house constantly, increasing the ventilation with the temperature,



FIG. 76.—ODONTOGLOSSUM CRISPUM SANDERÆ (See page 429).

yet getting 85° or 90° from sun heat through the day, and before the temperature declines to 80°, closing the house and damping every available surface, repeating this before nightfall. Admit a little air to allow the vitiated atmosphere to change, employing fire heat to maintain a night temperature of 60° to 65°, and 70° to 75° by day.

In regulating the growths allow as much foliage as can have full exposure to light, but all of it should not be made at once—that is, do not let the laterals or extensions advance to the limits before curtailing them, for to do so, and then have sub-laterals springing from every leaf base, means an excess of foliage that is not beneficial, but harmful. Leave a little room for lateral extension, as this causes fresh roots to be formed, and keeps up that activity so essential to the perfecting of the crops. The extra light will not do any mischief, but the higher elaboration of the sap will be added to the Vine's substance, and this stored matter is converted into the elements that give Grapes their amber or purple tints, and the quality for which they are esteemed. White Grapes require more light than black. This applies more particularly to Muscat of Alexandria than other varieties, and this variety profits more than most kinds by a good spread of foliage beyond the fruit.

Newly Planted Vines.—Every encouragement should be given these to make a sturdy growth. The borders will need copious supplies of water, yet there must not be any excess, or the growth may become gross and the wood have a large pith, whereas it should be thoroughly solidified. A light mulching around the stems will encourage roots from the collar. Syringe on fine afternoons and close early. Let the cane or canes extend to a length of 9 or 10 feet before stopping, then continue a growth from the extremity, and let it grow with whatever laterals it may make until September, then shorten them by degrees, so as to have them entirely removed when the principal leaves are maturing. Pinch the laterals up to the extent of the stopping of the cane

at the first leaf, and let the sub-laterals extend, but keep them clear of the principal leaves, and treat them as advised for those on the cane above the stopping. This growth will cause the stem to thicken and form free channels, through which sap can be rapidly transmitted. Cut the cane down to three good buds from the bottom wire of the trellis at the winter pruning, and then the Vines will push a sturdy growth the following year. Supernumeraries should have the laterals pinched to one leaf as produced, and the primary at 6 to 9 feet of growth according to the length it is intended to fruit it next season. The laterals issuing from the extremity should be pinched to one or two leaves each time those are made. All this cane requires is cutting off the laterals in September, and shortening it to the first plump bud below the first stopping. This is necessary, because the upper one or two buds are large and flat, if not actually started, and throw big, loose, profitless bunches. The laterals must not be cut off close to the cane until growth has ceased, and the principal leaves should be left on the cane as long as possible.

MELONS.—Fruit Ripening.—Plenty of air should be given, and water withheld from the fruit. Withhold water from the roots when the fruit shows a disposition to crack, and cut the shoot carrying it about half through a few inches below. Admit air constantly so as to insure a circulation, warm and dry. Maintain an artificial temperature of 70° to 75°, falling 5° at night. Place a sheet of paper over fruit exposed to the sun when the latter is powerful, which will prevent the fruit ripening unevenly and too rapidly to have high flavour. Water only to prevent flagging.

Fruit Swelling.—Earth those plants which have set their fruit, and let the soil be warm, moderately moist, rather strong, and pressed firmly down. Supply a soaking of water when the fruit is the size of an egg, follow with liquid manure in a day or two, and spread a thin coating of sweetened horse droppings on the bed. In narrow borders water will be required every other day, whilst those in wide beds may only need it once a week. Ordinarily water is required about twice a week. Reduce the fruits on a plant to three or four, and remove all flowers. Supply the needful supports to the fruits. Pinch laterals to one leaf, or remove them where likely to crowd the principal leaves. Syringe in the afternoon when the house is closed, say 3 to 4 P.M., and damp in the evening and morning. Ventilate at 75°, increasing the air with the advancing sun, have the temperature at 80° to 85° with alternate gleams, and 85° to 90° with the bright sunshine. Close at 80° to 85°, and increase to 90° or 100°. Fire heat should be used to maintain a night temperature of 65°, and 70° to 75° by day.

Setting the Fruit.—Take care to have the foliage fairly thin, so that light and air have free access. Sturdy growths, leathery leaves, and strong blossoms should be the aim. When the latter appear ventilate a little constantly; a gentle warmth in the pipes will promote a circulation of air. When the flowers are kept dry, and in a warm atmosphere, but not close, Melons set freely. Fertilise the blossoms about noon on fine days, when several are expanded on a plant, so as to insure uniformity of swelling, and stop at one joint beyond the fruit.

Training Young Plants.—Those for trellises should be trained with one shoot and the laterals rubbed off up to the first wire, and then every alternate one on opposite sides, afterwards stopping the leading shoots when about two-thirds up the trellis. Flowers ought to show on the laterals. If no fruit blossoms show pinch them at the second joint, and at one or two joints of the sub-laterals fruit will be shown. Plants in frames should be stopped at the second leaf. If this only results in two shoots stop them at the second joint and select four of the resulting shoots, training two to the front and two to the back of the frame or pit. Remove all others whilst quite small, and keep the stem clear of laterals and leaves for a space of at least 6 inches from the collar. Rub off every alternate lateral on the shoots, stopping the leaders about 15 inches from the sides of the pit or frame. Let there be no deficiency of moisture at the roots, and add fresh soil as the roots protrude. Sprinkle the plants at closing time, but avoid wetting the stems, as it may lead to canker. Continue to put out plants as frames become vacant or houses are available. A slight shade from powerful sun for an hour or two at midday is necessary, especially after a period of dull weather.

CUCUMBERS.—When the night temperature can be prevented from falling below 65° artificial heat may be dispensed with, making the most of sun heat by early closing. Look over the plants twice a week, well thinning out the old growths, and supplying liquid manure twice a week. Syringe only in the afternoon, but damp in the morning and through the day so as to maintain a good moisture in the house. With the ends of the houses north and south a slight shade becomes necessary, as from 4 to 5.30 in the afternoon there is danger of the foliage being scorched.

Pits and frames should be closed at 3 to 4 P.M., assisting plants in bearing with liquid manure, keeping it from the foliage. Remove bad leaves, thin out exhausted and too close growths, and stop young growths one or two joints beyond the fruit. Where plants are enfeebled by bearing top-dress with lumpy loam, and layer some of the younger growths at a joint, from which roots will be emitted and strengthen the succeeding growths. Night coverings will not now be necessary, but it is important to attend to the ventilation early, and not let the sun act on the foliage whilst it is wet so as to scorch, nor let the temperature rise to a high degree and then admit a quantity of air and produce a chill, which causes stunted fruits, many of which turn yellow at the ends instead of swelling.

PLANT HOUSES.

French Pelargoniums.—Plants that have done flowering may be stood outside to harden in an open sunny place. When the wood has become hard cut the plants well back, and allow them to start again into growth. These plants will be ready for pinching in September, and thus flower early the following season. A good number of cuttings from these may be inserted in a border outside, where nearly everyone will root. We find this the best method of propagating the plants. The latest plants should not be pinched after this date, but allowed to come into flower under cool airy conditions. All plants that have filled their pots with roots should have weak stimulants given them every time water is needed. Failing this give artificial manure to the surface of the soil. Under liberal treatment these plants continue to flower for a long time.

Zonal Varieties.—Those required for autumn and winter flowering may, if they have been well hardened, be placed in their flowering pots and stood outside. In potting press the soil firmly into the pots, using a compost of good loam and one-seventh of manure, with a little sand if the loam is of a heavy nature. Place the plants in an open sunny position, and water them carefully until they are rooting freely in the fresh soil. Ivy-leaved kinds may be subjected to the same treatment. They are very useful during autumn and winter, but need to be thoroughly ripened, or they will not flower satisfactorily.

Tuberous Begonias.—Place the earliest plants into the pots in which they are to flower, and grow them in a cool airy house. Shade only for a few hours from the brightest sunshine. Those raised from cuttings will make capital plants in 5-inch pots, in which size they may be placed as soon as they are well rooted. Seedlings may be potted singly in 2-inch pots, or pricked into boxes until they are large enough for 4-inch pots. If they are not wanted to flower this season the best may be marked and grown in pots another year. Seedlings do well if a slight hothed can be formed in a frame, and the plants put out in 4 or 5 inches of soil on the surface.

Bouvardias.—Keep the shoots of the earliest plants well pinched, and place them in the pots in which they are intended to flower. These should be given cold frames, and when well hardened, abundance of air. Young stock raised from roots may be placed into 5-inch pots. Do not pinch these until they are 7 or 8 inches high. If allowed to attain strength before they are pinched they invariably throw up freely from the base, and make good plants.

Callas.—Those that have done flowering may be planted in well manured ground outside. In planting out partially reduce the balls, and if the plants are large break them up, and remove small useless suckers. These, if required, may be planted out for flowering in 5-inch pots. In this size the plants are most useful for grouping and other furnishing purposes. These plants are easily grown, and will yield their flowers over a period of six months in succession, so that they are invaluable for large conservatories or where groups are required in the dwelling house. Too many cannot well be grown.

Salvias.—These may be planted out where this system of culture is favoured. It is a good plan, because the plants grow rapidly, and only need attention in pinching. Moreover, considerable labour is saved over growing the plants in pots. These plants do not suffer by lifting during September.

Solanums.—These should be in cold frames, and abundance of air given them. If not in the pots in which they are to berry no time should be lost in putting them in. They do well planted out if a frame can be set apart for them until they are well established. In planting them out the base should be firm, so that they can be lifted with good balls. When grown in pots great care is needed in supplying the plants with water or the foliage turns yellow. When planted out this does not occur with ordinary care, and the plants frequently attain double the size they would in pots.

Hydrangeas.—Those that have failed to show flowers and have lengthened out their growths may have the tops removed and rooted. The old plant can then be thrown away. The tops root freely in small pots in any warm close place; they should afterwards be grown fully exposed to the sun, and are then certain to form bold flower buds. Plants started on purpose to yield cuttings may, when they have lengthened out their growths, have the tops rooted. The old stools may be stood outside.



THE APIARY.

SPITEFUL BEES.

THIS is a time when the beginner in bee-keeping is apt to become disgusted with his bees, because they are so spiteful when he is not interfering with them, but only dressing his flower beds. This is one of the actions that tend greatly to make bees spiteful. If bees be irritated they will frequently annoy people the whole of the summer, therefore all work in the garden near the hives ought to be performed after they cease working, or

before they begin, being careful to wash the hands thoroughly after handling plants or soil. Some plants are more objectionable to bees than others, such as Pennyroyal; but the roots of most plants, as well as the fresh soil, are obnoxious to them, at least they resent it by the free use of their stings to such an extent that they pursue and attack all who may not be a safe distance from the apiary. This causes the timid unhappiness instead of pleasure. All work may be performed without irritating a single bee.

SUPERING.

Whenever the temperature rises to 65° or 70° with sunshine, and the weather is calm, the clusters of bees will enlarge suddenly until the hive cannot contain them, queen cells will be formed, and swarming eventually take place. I then allow no loitering, but super at once, regulating the space according to the ingathering or flow of honey. It is not when bees are crowded in supers that the comb becomes coloured, but when they are few. It was through observing this in my early bee-keeping days that I was induced to use close-fitting dividing boards in supers the first part of the hive they were used in, and I did not require much experience to teach me that allowing bees access to supers from the centre of the hive meant spoiling super honeycomb for table use, yet this custom is general nearly all the world over. In 1891 an American adopted our plan of admitting bees to supers at the outsides only, and the practice may, in consequence, soon become more general.

BEE SOCIETIES.

These have benefited dealers more than bee-keepers; the former naturally worked for their own interest, the latter simply accepting the statement that it was also for theirs. I am pleased to see a contemporary in Scotland taking up the question, and I have no doubt good will flow from it. As there is not space in one article to discuss the whole question involved in societies and shows I will restrict myself to one or two suggestions which I brought forward at meeting after meeting of the Caledonian Apian Society, but to be as often frustrated.

EXHIBITING.

One question was the encouragement of lady bee-keepers; also, I wished to place the bee-keeper on a small scale equal in all competitions with the most extensive. My proposal was simply to prevent the bee-keeper on a large scale selecting a dozen or two dozen sections from four or five thousand to compete against one who perhaps had not more than fifty to choose from. It was also meant to encourage a system that would produce honeycomb in the greatest purity, and to promote competition with supers of sections, or supers proper as wrought by the bees and not selected. To prevent selection the Secretary was either to supply stamped sections or supers, or stamp those sent before being filled, according to the number allowed each competitor. Each section or bar of super was to be stamped with the Society's stamp, and numbered 1, 2, and 3, so as to make it impossible for the competitor to take a section from one number to fill up another.

HIVE IMPROVEMENTS.

At none of the shows I have attended was there an original make of hive. Except those of Messrs. Neighbour and my own, all the others were copies of other makers. To prevent that I proposed, and it was carried at a meeting, that in the future no prizes were to be awarded unless for some distinct improvement. The said improvement, along with the other points of excellence the hive possessed, were to be written plainly on paper, and placed upon the exhibit; but this restriction was overturned by the dealers, who should not be allowed to have any share in the management of bee shows if amateur bee-keepers are expected to receive any benefit from or through them. Some time since there appeared in a Kirkcudbrightshire paper a most misleading statement signed

Wm. McNally, who said that my proposal was that "everyone should judge his own hive," a very different thing from my motion. —A LANARKSHIRE BEE-KEEPER.

SPARROWS EATING BEES.

I HAVE four hives of bees which until recently have done well, but within the last few weeks a colony of sparrows which frequent my outbuildings have fallen upon them and threaten soon to destroy them all by taking them one after another as they gain the alighting board to enter their hives, or settle upon the ground in front to rest before entering with their loads. Each captured bee is taken at once to feed the sparrows' young. You may imagine that with this process going on all day the consumption is enormous, and must soon end in the destruction of the hives. I have tried various kinds of scarecrows, but the birds are far too tame to take any notice of them. Will you kindly suggest any remedy? I never heard before of such attacks by birds, but other cases must probably be known to you.—B.

[We have often observed sparrows eating drone and worker larvæ when thrown out of the hive, and catch an odd bee occasionally when on the wing, but we have never seen the birds take the bees as they were entering the hive. If that is the only place they catch the bees, guarding the hive entrances with wire netting just wide enough to exclude the birds might put a stop to their temporary caprice. If that is of no effect, shooting, trapping, or catching them with birdlime or other means must be resorted to. We should certainly not permit them to continue their destructive work.]

TRADE CATALOGUE RECEIVED.

Messrs. F. Sander & Co., St. Albans.—*Cypripediums*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Figs Failing (*G. T. D.*).—The samples reached us one post too late for examination and the publication of a reply in the present issue. The matter shall have attention.

Mould in Mushroom Bed (*C. W.*).—The mould may not be the cause of the Mushrooms being spoiled as soon as they appear. You ask for a remedy for a disease (if one) that is not before us for examination nor described by you, therefore we are not in a position to prescribe for the malady. If you forward specimens of the spoiled Mushrooms, and furnish particulars of the attack, we shall be pleased to assist you if possible. Your letter is too brief and vague for anyone to understand the case.

Small Tomatoes (*G. G.*).—Considering the varieties you name, the sturdiness of the plants you describe, and the dissolved chemical manures given, we can only attribute the result to premature ripening under intense sun heat in an insufficiently ventilated house. In the section supplied we see no provision for ventilation except by raising the ridge cap. This is insufficient for Tomatoes and most other crops in summer except, perhaps, Cucumbers. A "large handful" of the mixture in 2 gallons of water will produce a liquid of more than twice the strength we should like to use. You might have indicated the size of the fruits by stating the average number of each variety to a pound.

Reverse Names (Showman).—You appear to rejoice in your discovery. We can give you another and much older example in the name of the Elruge Nectarine. The name Elruge is derived from an anagram of Gurle or Gourle, who was a nurseryman at Hoxton, or Hogsden, as it was then called, near London. It is he of whom Leonard Meager speaks when, writing in 1670, he says, "Here follows a catalogue of divers sorts of fruit which I had of my very loving friend Captain Garrle, dwelling at the great nursery between Spittlefields and Whitechappel, a very eminent and ingenious nurseryman, who can furnish any that desireth with any of the sorts hereafter mentioned; as also with divers other rare and choice plants." Switzer says: "The Elruge Nectarine is also a native of our own, the name being the reverse of Gourle, a famous nurseryman at Hogsden in Charles the Second's time, by whom it was raised."

Calceolarias Failing (T. F. W.).—The flowers were quite withered, but we understand the condition of the plants. The seed had nothing to do with the collapse. There has been a difference in some points in culture or of surroundings that influence the growth of these plants. They may have received a check in winter, or the atmosphere has been too dry for them. Similar failures frequently occur when the plants have been too root-bound in small pots before being shifted into larger, and especially when the soil in the small pots has been too dry at the time of repotting. In such cases the root action is never so vigorous as it should be, and though it may be sufficient to support the plants till flowers commence expanding, the strain on their resources then becomes too great and collapse ensues. The failure is more certain if the soil is too light and sandy in character. With an abundance of roots actively working in sound fertile soil, and the plants kept scrupulously free from insects, Calceolarias remain in beauty for a considerable time and then ripen good crops of seed, a much more exhausting process than flowering.

Strawberries Undeveloped (J. J.).—The fruits sent have been prevented swelling through exposure to drying currents of air or excessive evaporation. When a large amount of air is admitted in bright weather after a dull period, the ventilation not commencing till the sun has acted some time on the house and raised the temperature, moisture is condensed on the fruit, which does not heat so quickly as the moisture-laden atmosphere, and the current of air acting directly on the fruits, dries and hardens their skins so that they are prevented developing, and they become discoloured and ripen prematurely. It is a very common occurrence in houses that have the Strawberry plants so placed that the air admitted blows directly upon the fruit whilst that is exposed to the full influence of the sun. The only remedy is to admit air earlier, place the plants where they will not be subjected to dry currents on the same level as the fruits, maintain a more genial and regular condition of the atmosphere, and keep them well, but not excessively, supplied with water at the roots. The evil is more likely to occur with the later than the earlier plants; in fact, that is where and when it does happen through the larger admittance of air, and consequently greater evaporation in arresting the development of the fruits.

Bordeaux Mixture—Tomato Disease Preventives (E. W.).—Differing proportions of sulphate of copper and lime have been recommended for preparing the Bordeaux mixture. Mr. Henry Fincham appears to have tried several, and found some of them corroded the foliage. He finds 7 lbs. of sulphate of copper with an equal quantity of lime safe and effectual. He bruises the sulphate of copper to a fine powder to facilitate solution. The number you name, July 18th, 1891, is in stock, and such matter as you appear to desire pertaining to the Tomato disease may be found in the issues of June 18th, July 9th, and August 6th, 1891, also in March 24th, 1892. Any of the numbers can be had on sending 3½d. each for them to the publisher. All liquid applications should be used in the form of spray on the very first symptoms of leaf discoloration. Carbonate of copper in solution or suspension are considered preferable to the Bordeaux mixture for the prevention of fungoid attacks. Both are referred to on page 425 last week, under "Red Rust on Roses." Since you wish to try experiments you will perhaps not overlook the powder referred to by Mr. Fenn on page 408 of the same issue.

Plants for Greenhouse (Rustic).—As you would like flowers in winter the house should be heated, having sufficient 4-inch hot-water pipes to maintain a night temperature of 40° to 45°, and 5° more by day. A small boiler would suffice. The following are useful plants:—*Abutilon* *Boule de Neige*, *Acacia armata*, *Aralia Sieboldi*, *Aspidistra lurida variegata*, *Azalea indica* vars. *Deutsche Perle*, *Jean Vervaene*, and *Kaiser Wilhelm*; *Camellias Alba Plena*, *C. M. Hovey*, and *Mrs. Cope*; *Cyclamen persicum*, *Cytisus racemosus elegans*, *Farfugium grande*, *Hydrangea hortensis*, *Myrtus communis angustifolia*, *Plumbago capensis*, *Sparmannia africana*, and *Vallota purpurea*. In addition to those you can have *Begonia Dregei*, *B. Weltoniensis*, and *Tuberous varieties*, *Tree Carnations* *Mdlle. Carle*, *Miss Joliffe*, and *Souvenir de la Malmaison*; *Epacris hyacinthiflora*, *Mont Blanc*, and *Vesuvius*; *Ericas gracilis autumnalis*, *hyemalis*, and *melanthera*; *Fuchsias* *Miss Lucy Finnis*, *Champion of the World*, *Mignonne*, and *Earl of Beaconsfield*; *Heliotropes peruvianum* and *The Queen*; *Lilium auratum*, *L. speciosum*; *Show Pelargoniums Brilliant*, *Statesman*, and *Claribel*; *Spotted Pelargoniums* *Captain Raikes*, *Duchess of Edinburgh*, and *Volonté Nationale*; *Fancy Pelargoniums* *Fanny Gair*, *Mrs. Mendel*, and *The Shah*; *Double-flowered Zonals* *La Cygne*, *Erl King*, and *Dolabel*; *Ivy-leaved Galilée*, *Berthelot*, and *Newton*; *Zonals* *Charles Mason*, *Queen of the Belgians*, and *Mrs. David Saunders*; *Primula sinensis* in

variety, and *Cineraria* in variety. Then there are bulbs such as *Hyacinths*, *Narcissi*, and *Tulips*, with *Deutzia gracilis*, *Dielytra spectabilis*, *Lily of the Valley*, *Spiraea japonica*, and many others, including *Roses*, which might be employed, not forgetting that *Chrysanthemums* make a fine display in autumn.

Removing Marechal Niel Rose in June (M. L.).—If [we particularly desired to remove from a greenhouse a *Marechal Niel* that was planted last year we should not hesitate to transplant the Rose even at the present time, and with special care in management we should expect it to grow. In the first place, the site must be prepared for its reception before removal, as the shorter the time the roots are out of the ground the better, and they must certainly not be allowed to become dry. Next cut down the growths already made to dormant buds at the base of the stems, just as if pruning any ordinary Rose in early spring; and if there are any leaves on the parts left cut them off also, and thus remove the evaporating surfaces through which the moisture would escape from the stems. Secure all the roots practicable, but cut every broken or jagged end quite smooth with a sharp knife. Plant quickly, but well; give water copiously, and mulch the surface of the soil with partially decayed manure. Shade the plant effectively and syringe frequently, keeping, if possible, the stems moist. A mat or covering of straw placed across them and kept damp would be serviceable. If there is a clear Briar stem wrap this with haybands and saturate them daily, or twice a day in very dry weather. If the bark is kept perfectly fresh, as it may be, growths will soon push as if it were spring, extend considerably during the summer, and the lower parts at least will ripen in the autumn. This advice is founded on experience in transplanting Roses under special circumstances at mid-summer. If the bark shrinks through exposure to the sun or dry air the plant will die. The shrinkage cannot be prevented by watering the roots alone, however copiously, and the secret of success rests in preventing the escape of moisture from the stems by evaporation, but there will be little or no loss of that kind if they are kept damp.

Grapes Shanking (Outsider).—From your particulars of the treatment of the Vines we gather that there must be a large amount of humus in the soil and a deficiency of mineral substances. From the extensive use of liquid manure there cannot be any lack of nitrogenous matter. The mulching will increase the humus, though it may tend to the feeding of the Vines by promoting of surface roots. The mechanical formation of the border may be all that is needed, but its chemical components must be defective in some essential particular. It may be deficient in lime. Chalk would be the proper substance to apply to a light soil, or preferably clay marl, as there would then be added aluminum and iron as well as lime. For the present we should use superphosphate two parts and gypsum (sulphate of lime) one part, applying at the rate of 1 lb. to a square yard, lightly pointing in, and well watering afterwards. It cannot do other than benefit the Vines provided the superphosphate does not contain too much acid. A good dressing of air-slaked (not quicklime) about 2 inches thick and mixed with the soil in the autumn as deeply as the roots allow would aid in the formation of nitrate of calcium, and that, we think, is what the Vines require. It is essential to deriving the fullest benefit from the liquid and solid manures applied. Another season we should rely on free applications of the following mixture, commencing when starting the Vines:—Steamed bonemeal three parts, sulphate of potash one part, gypsum (sulphate of lime) one part, mixed, and applied at the rate of 2 lbs. per square yard when the Vines are starting into growth, repeating when the fruit is set, and again when stoned; otherwise pursue the treatment hitherto followed. The manure you name is excellent for Vines, and may be used according to the instructions. What the Vines need is phosphates to counteract the tendency of the other elements supplied too freely under prevailing conditions. We doubt if anything that you might apply now would enable such bunches as you have sent to finish satisfactorily, but we think the Vines may be improved another year by encouraging surface roots and feeding with mineral fertilisers. The border should be firm; the bunches do not indicate it is so firm as it should be, and certainly the Vines are not.

Lilium Harrisii (S. L. B.).—If the bulbs are 7 to 9 inches in circumference you will require 8-inch pots for three of them. After potting they should be stood in frames, and the space between the pots filled with ashes, and about 1 inch of the same material or cocoa-nut fibre refuse spread over the surface. Shade the frame to prevent the necessity for watering until growth appears through the plunging material. If the soil at potting time is in an intermediate state for moisture, and the plunging material kept damp, they will need no water until they have grown through. When they have reached this stage they may be placed on a shelf close to the glass with some moisture-holding material beneath them; any house will do for them where they can enjoy abundance of light and a free circulation of air daily. Sturdy growth must be maintained. The temperature from the time they are removed from the plunging material may range about 50°. Plenty of air must be given, or they will draw up weakly and fail to flower satisfactorily. This is not all, for they soon become a prey to aphides if kept in a close confined atmosphere. They should not be placed in a higher temperature until the flower buds have formed and display signs of developing, say are 1 inch in length. The temperature, after this stage has been reached, should not exceed 60°. A safe temperature is 55° to 60°, according to external conditions. *Liliums* do not like forcing, and if over-forced the flower buds often turn yellow and never develop. If unduly forced in their later stages the flowers become

deformed and are devoid of substance. Under these conditions plants potted as early in August as they can be obtained will flower by the end of March or first week in April. By giving cool airy treatment until the flower buds can be felt in the top, and then a temperature of 50° to 55°, they can be had in flower by the first week in May. While growing the plants should have two applications of artificial manure applied to the surface of the soil, one when they are 1 foot high and the other after the flower buds have formed. To secure a second crop of flowers the plants must be hardened and stood outside. Cut the stems partially back, and apply artificial manure to the surface. If attention is paid to watering they will commence throwing up again from the base and flower during September. This time they will only make weak growth in comparison to what they did at first, the flowers will also be smaller, and often there will not be more than one or two on a spike. The bulbs are of little use for forcing the second year, and must be repotted before they commence the formation of new roots and grow again into strong flowering bulbs. After the imported bulbs have flowered they invariably divide and form two or more bulbs, and these need developing before strong spikes will be produced. On your light sandy soil they should do well planted out the spring of the second season. In this case your soil would require to be liberally enriched with manure. If growing the flowers for market we should plant them out, and secure fresh bulbs for forcing annually.

Propagating Marguerites (L. M.).—Suitable cuttings can be rooted at this season of the year as well without a greenhouse or frame as with those conveniences. Procure a box, such as a starch box, and bore a few holes in it for drainage, or rather to prevent stagnation of the soil, place a crock or oyster shell over each aperture, then half fill the box with light sandy soil, pressing it down firmly, and cover the surface with pure sand. Next give a thorough watering through a fine-rosed can, and then, not before, choose, make and insert the cuttings. Growths, not too soft, but certainly not hard, without any flower buds are the best. They may be about 3 inches long or a little more, and two-thirds of their length divested of leaves, the end of each cutting being cut smoothly across with a sharp knife, not torn by a blunt one nor bruised by a pair of scissors. Insert the cuttings up to the leaves, making them firm by pressing the soil against the lower part of the stem with a pointed stick, and mind each cutting rests firmly on the soil, and is not suspended in a hole made too deep for it. Give a sprinkling to settle the sand about them, then lay glass across the box. The tops of the cuttings should be about an inch below the glass, which should fit closely for excluding air. Stand the box in a shaded place either outdoors or in a frame, but not under trees, and few of the cuttings will fail to grow. We should not expect to lose one out of a hundred. When they grow and touch the glass tilt it a little to admit air, and if the leaves do not flag admit more and more air till the plants will endure full exposure and sun. They will then be ready for placing singly in 3-inch pots, and if they can be kept close in a similar manner to that advised, in a deeper box, they will be established the sooner. When fairly growing they may be fully exposed, and when roots protrude through the drainage shift the plants into 5-inch pots for flowering, potting firmly in good loamy soil. They make excellent growth in the open air in summer much better than in a window, but the pots should be stood on ashes or other base impervious to worms, and, of course, the plants must be judiciously watered throughout, regulating supplies by the growth and the weather. We are very pleased to hear your villagers take such great pride in growing plants and flowers for church decoration, and that you can have sufficient by collecting them. We cannot imagine a more pleasant occupation for the people who co-operate with you so well in the excellent object you all have in view. We could not give a sufficiently full reply last week owing to great pressure, and thought we could serve you better by waiting till the present issue.

Names of Fruits.—*Notice.*—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (W. B.).—We cannot name the Apple. It is probably a local variety, and in our opinion, is far from being worthy of perpetuation. We can lay our hands on many fruits much firmer and in every way better than those you send. We shall be glad to have the notes referred to.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. P.).—1, *Pittosporum tenuifolium* var. *parviflorum*; 2, *Olearia albidula*. (J. J.).—1, *Clematis montana*; 2, *Saxifraga granulata* flore-pleno. (T. Wilson).—Possibly *Retinospora ericoides*, but too much dried to be identified with certainty.

COVENT GARDEN MARKET.—JUNE 8TH.

BUSINESS brisk, with prices firmer

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½-sieve	1	0	5	0	Grapes, New, per lb. ..	2	0	4	0
Apples, Canada and Nova Scotia, per barrel ..	12	0	20	0	Lemons, case	10	0	15	0
Apples, Tasmanian, per case	7	0	12	0	Oranges, per 100 ..	4	0	9	0
					St. Michael Pines, each ..	3	0	6	0
					Strawberries, per lb. ..	1	0	4	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beans, Kidney, per lb.	0	9	to	1	0	Mustard and Cress, punnet	0	2	to	0	9
Bect, Red, dozeu	1	0	0	0	0	Onions, bunch	0	3	0	5	
Carrots, buuch	0	4	0	0	0	Parsley, dozen bunches	2	0	3	0	
Cauliflowers, dozeu	2	0	3	0	0	Parsuips, dozen	1	0	0	0	
Celery, bundle	1	0	1	3	0	Potatoes, per cwt.	2	0	3	0	
Coleworts, dozen bunches	2	0	4	0	0	Salsafy, bundle	1	0	1	6	
Cucumbers, dozen	2	6	4	6	0	Scorzonera, bundle	1	6	0	0	
Endive, dozen	1	3	1	6	0	Seakale, per basket	1	6	1	9	
Herbs, bunch	0	3	0	0	0	Shallots, per lb.	0	3	0	0	
Leeks, buuch	0	2	0	0	0	Spinach, bushel	3	0	3	6	
Lettuce, dozen	0	0	1	6	0	Tomatoes, per lb.	0	9	1	0	
Mushrooms, punnet	1	6	2	0	0	Turnips, bunch	0	0	0	0	

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arum Lilies, 12 blooms ..	2	0	to	4	0	Myosotis or Forget-me-not, dozen bunches.. ..	2	0	to 4	0
Bluebells, dozen bunches ..	0	9	1	0	Narciss (various), Scilly dozen bunches.. ..	2	0	4	0	
Bouvardias, bunch	0	6	1	0	Pæonies, dozen blooms ..	0	6	1	6	
Carnations, 12 blooms ..	1	0	3	0	Pansies, dozen bunches ..	1	0	2	0	
Carnations, Malmaison, 12 blooms	2	0	6	0	Pelargoniums, 12 bunches	6	0	9	0	
Cineraria, dozen bunches..	6	0	9	0	„ scarlet, 12 bunches	4	0	6	0	
Cowslip, dozen bunches ..	1	0	1	6	Polyanthus, dozen bunches	1	0	2	0	
Daffodils (single), doz. bunch.	1	6	6	0	Primroses, dozen bunches	0	6	0	9	
Eucharis, dozen	2	6	5	0	Primula (double) 12 sprays	0	6	0	9	
Euphorbia jacquiniæflora dozen sprays	2	0	0	0	Orchids, per dozen blooms	2	0	8	0	
Freesia, dozen bunches ..	2	0	4	0	Roses (indoor), dozen ..	0	9	2	0	
Gardenias, per dozen ..	1	6	4	0	„ Red, per doz. blooms..	2	0	4	0	
Lilium longiflorum 12 blooms	2	6	4	0	„ Tea, white, dozen ..	1	0	3	0	
Lilium (various) dozen blooms	1	0	3	0	„ Yellow, dozen	2	0	4	0	
Lily of Valley, doz. sprays	0	6	0	10	Spiræa, dozen bunches ..	4	0	6	0	
„ doz. bunchs.	3	0	9	0	Tuberose, 12 blooms.. ..	0	6	1	0	
„Maidenhair“ Fern, dozen bunches	4	0	8	0	Tulips, dozen bunches ..	2	0	6	0	
Marguerites, 12 bunches ..	2	0	4	0	White Lilac (French) per bunch.. ..	4	0	5	0	
Mignonette, 12 bunches ..	2	0	6	0	Violet Parme, per bunch ..	2	6	3	6	
					Violet, English, doz. bunch.	1	0	1	6	
					Wallflowers, dozen bunches	2	0	4	0	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (golden) dozen	6	0	to	12	0	Geuista, per dozen	6	0	to	10	0
Arnm Lilies, per dozen ..	6	0	9	0	Gerauiurus, Ivy	6	0	9	0		
Azalea, per plant	2	0	3	0	Lilac, each	2	0	3	6		
Calceolarias, per dozen ..	4	0	8	0	Lobelia, per dozen	4	0	6	0		
Cineraria, per dozen	4	0	8	0	Lycopodiums, per dozen ..	3	0	4	0		
Cupressus, large plants, each	3	0	5	0	Marguerite Daisy, dozen ..	6	0	12	0		
Dracæna terminalis, dozen	24	0	42	0	Mignonette, per dozen ..	6	0	10	0		
" viridis, dozen	12	0	24	0	Musk, per dozen	3	0	6	0		
Erica various, per dozen ..	12	0	24	0	Myrtles, dozen	6	0	9	0		
Euonymus, var., dozen ..	6	0	18	0	Palms, in var., each	1	0	15	0		
Evergreens, in var., dozen	6	0	24	0	" (specimens)	21	0	63	0		
Ferns, in variety, dozen ..	4	0	18	0	Pelargoniums, scarlet, doz.	4	0	6	0		
" (small) per hundred	8	0	12	0	" per dozen	9	0	18	0		
Ficus elastica, each	1	6	5	0	Rhodanthes, per dozen ..	6	0	8	0		
Foliage plants, var., each ..	2	0	10	0	Saxifraga pyramidalis ..	1	6	2	0		
Fuchsia, per dozen	6	0	12	0	Spiræa, per dozen	8	0	12	0		

Bedding Plants in variety in pots and in boxes.



MIXING AND USING MANURES.

At a recent meeting of agriculturists the chairman declared his conviction that the scientific application of manure to the land would eventually bring back prosperity to agriculture. He spoke of such a possibility as being quite a thing of the future, and he was right, for the British farmer moves slowly, if surely, along the pathway of progress. He is not much given to change, and his experience of "artificial" has not been entirely satisfactory—far from it. So frequently has he been "done" by some specious dealer having a special compound to dispose of that he has come to regard his manure heap as the only reliable source of fertility. Well is it for him if the flock holds an equally high place in his

estimation for soil enrichment. It will be far better when he has gained sufficient scientific knowledge to use other manure with confidence and precision. No doubt there are many intelligent men with whom the systematic use of chemical manures has been in full force for some time; their influence is felt, their example tells. But we want something more influential at work, and therefore regard the action of County Councils in the establishment of agricultural stations and colleges as a decided step onwards. When each county has its experimental stations, as a head and centre where practice with science is fully exemplified, then, and not till then, may we hope for systematic improvement.

As was shown in a recent article, farmers on the continent have, under the fostering influence of Government supervision, acquired familiarity with the value and composition of manures. With us there has been a certain degree of familiarity with guano, superphosphates, crushed bones, and nitrate of soda, but we have been slow to learn anything about guano analysis, and how to prepare a cheap and efficient substitute for it; let us see how entirely this is worth while. Taking present values as our basis, we have superphosphate of about 27 per cent. at £3 per ton, or 2s. 3d. per unit, nitrate of soda yielding nitrogen equal to about 19 per cent. of ammonia at £9 per ton, or 9s. 6d. per unit, and sulphate of ammonia of about 25 per cent. of ammonia at £10 10s. per ton, or 9s. per unit. We have also guano containing 31 per cent. of phosphates and 14 per cent. of ammonia at £14 per ton. If we allow the guano phosphates to be equal in value to those in superphosphates, and its ammonia to be equal in value to that of nitrate of soda or sulphate of ammonia, we find the 31 per cent. of phosphate are worth 31 times 2s. 3d. or £3 9s. 9d., whilst the 14 per cent. of ammonia at 9s. 6d. per unit is worth £6 13s., so that the real value of guano is only £10 2s. 9d. per ton, and it is quite clear that it is much cheaper to buy superphosphate and nitrate of soda to mix our own guano, and so effect a saving of some £2 per ton, while we are assured of having a pure manure.

To go a little farther upon the same basis, under the guidance of one of our best chemists, we take dissolved bone, which will contain say 37 per cent. of bone phosphate and 3 per cent. of ammonia, and find thirty-seven times 2s. 3d. is £4 3s. 3d., and for the ammonia three times 9s. 6d. is £1 8s. 6d., or a total value of £5 11s. 9d. per ton, which shows the price we ought to give for pure dissolved bone. Applied to rape cake containing 6 per cent. of ammonia and 4 per cent. of phosphates of lime and potash, we have 6 times 9s. 6d., or £2 17s., plus 4 of phosphate at 2s. 3d. or 9s.; and potash worth 3s. 6d. if required, or a total value of £3 9s. 6d. per ton, which shows that present market prices for rape cake are above value, and it, like guano, can only be purchased at a loss. Buy only under a guaranteed percentage, test this by unit value, and so ascertain if you are likely to obtain full value for your money. We have made it clear that this could not be done at present prices for guano or rape cake; the matter has a much worse aspect when the unit test is applied to the compound manures in commerce. Market value and intrinsic value prove to be very different under this test, as for example in a compound manure quoted at £9 15s. per ton, which under the test of 2s. 3d. per unit for phosphates, 9s. 6d. per unit for ammonia, and a proportionate amount for potash, proved to have an intrinsic value of only £6 8s. 9d. per ton, or £3 6s. 3d. per ton less than the price asked, and undoubtedly obtained for it from purchasers ignorant of test values and how to apply them.

Careful consideration of the foregoing calculations will show the importance of buying manures separately under a guarantee, and mixing them at the farm; this is really the only way to obtain pure manures at their just value. They are then used to advantage during the season of growth if worked into the surface soil, or sown upon the surface in showery weather. For permanent

pasture, for layers of two, three, or several years' duration, for winter or spring corn, for all green crops and roots, for Hops and fruit trees or bushes, for all vegetation these prime fertilisers are used with profit. They serve better than anything else can do to prevent soil exhaustion, to sustain its fertility by, and only by, steady persistence in their use for every crop. It is our ambition that our readers at any rate shall be well abreast of other farmers in the progress and renewed prosperity which may reasonably be looked for with the growth of the knowledge of these things which is bound to follow the spread of technical education among us.

WORK ON THE HOME FARM.

Heat and moisture have combined since our last note to promote that free growth which cold dry weather had retarded so long. In southern counties grass for hay is coming on so fast that it will soon be bloom, but in the midlands the hay crop is very backward. To all we say, Mow as soon as the first growth of grass is in bloom—earlier rather than later—if you would derive full benefit from the aftermath. Remember the teaching of our article on cattle feeding last week, and not only strive for a high milk average, but also to finish as many bullocks as possible on grass by next October. Make hay or silage according to the weather, preferably hay, but have plenty of silage if the weather is at all unsettled. Do not leave the hay crop to spoil as was done so generally last year, but mow at once when it is ready. It is wise to make due provision of fodder for winter, but in doing it avoid the loss of summer grazing.

Much of the Wheat is a full strong plant though backward, condition of soil telling upon the crop as it always does. We have seen very much corn of that sickly hue which so clearly denotes poverty of soil, resultant either from want of means or ignorance. Such poor practice is the bane of farming, it never answers. It is far better to have less land and cultivate it thoroughly, than to have a lot of half crops and starveling animals. Root crops have been sorely tried by drought; it is only those which were sown early over furrows filled with farmyard manure that have thriven. The roots becoming established in the moist "muck" so early keep the plant growing freely and practically unharmed by drought. No doubt a fine crop of roots is a boon, but it is a speculative costly crop upon which one does not care to depend very much. It is far better to grow more forage—wholesome nutritious food as it is—to make more hay and silage, to keep our head of stock in winter well within bounds, and so lessen our expenditure and anxiety about results at the same time. The matter is worthy of thoughtful attention, and there is no better time for this than during the season of growth, amidst all the trying changes of weather of our fickle climate.

Sow a field of Maize now, taking especial care to previously enrich the soil thoroughly, for it is a greedy crop, well rewarding us for all our care, coming into use at a critical time when other green food is often scarce. Only beware of the rooks, or they will clear off every seed of it before you are up in the morning.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
May and June.		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	29	30.026	64.0	56.0	S.S.W.	57.9	70.3	50.8	116.7	45.2	—
Monday ..	30	30.147	62.9	56.7	S.	57.4	77.0	54.6	120.0	48.3	—
Tuesday ..	31	29.913	73.6	61.2	N.E.	58.6	84.7	55.1	130.2	46.0	0.031
Wednesday	1	29.881	60.2	54.2	S.W.	59.6	71.1	53.1	119.9	49.6	0.051
Thursday ..	2	29.730	56.4	54.7	S.	59.3	66.8	55.5	108.2	49.4	0.100
Friday ..	3	29.951	60.6	50.9	S.W.	58.0	68.7	49.9	121.7	43.3	—
Saturday ..	4	30.100	57.2	48.3	S.W.	58.1	66.2	45.6	118.4	38.3	0.130
		29.964	62.1	54.6		58.4	72.1	52.1	119.3	45.7	0.312

REMARKS.

May 29th.—Generally sunny in morning and evening, but frequently cloudy in the afternoon, and once or twice spots of rain.

30th.—Breezy with alternate cloud and sunshine early, bright warm day.

31st.—Bright sunshine till 3 P.M., cloudy after, very warm rain from 6 to 7 P.M. fine night.

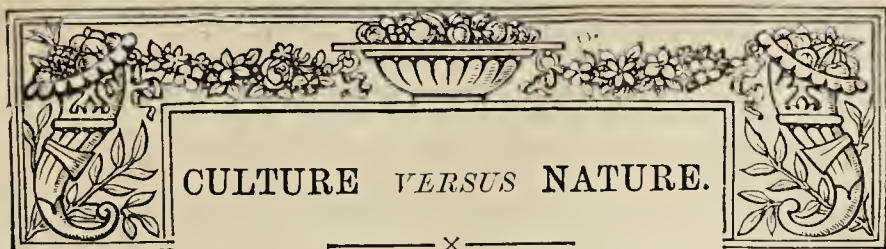
June 1st.—Generally sunny and fresh, but occasionally cloudy.

2nd.—Wet till 11.30 A.M., generally bright and sunny after 2 P.M.

3rd.—Generally sunny and pleasant.

4th.—Sunny and fresh day, generally cloudy in evening, and rain at night.

A fine summer week; temperature still above the average.—G. J. SYMONS.



THE following paper, prepared by Mr. F. W. Burbidge, Curator, Botanic Gardens, Trinity College, Dublin, was read, in his absence, at the meeting of the Horticultural Club, Hotel Windsor, Tuesday, June 7th, and we have pleasure in giving it the prominence in our columns to which it is entitled.

"All knowledge is of use if applied aright; no knowledge is of use if applied awry."
—PROF. M. FOSTER.

The cultivation of vegetables, fruits, and flowers for domestic use, or for profit in other ways, is now one of our most important national industries, and it is a pleasure to see the interest now being taken in the matter by the different County Councils, for we cannot have too much light and learning thrown upon such an interesting and profitable theme.

Your Secretary asked me for a paper on the "adaptability of plants to cultivation," so I have glanced at the subject, and headed it, "Culture *versus* Nature." The fact really is, we do not know much of the adaptability of plants until we actually cultivate them, each for ourselves; for one of the charms of gardening is the ever-varying development of the same plant under different cultural conditions. Now, let us simply ask ourselves, What is the meaning of the word "culture," as applied to plants? Culture to us means improvement; and as Pope has it—

"If vain our toil,
We ought to blame the culture, not the soil."

Then culture or improvement consists of many things. Firstly, for example, the plant selected is isolated; thus competition with other plants for food, and light, and air, and space is removed. Not only does the gardener thus enable a plant to naturally gain the most advantages from any one selected plot of soil, but he often augments the food supply by irritating the soil and by adding special plant food or manures for special crops, while pruning and training often increase the resultant crop by securing that growth force can develop freely along definite lines, and just where and when it is most wanted, or when the greatest strain of fertility bears upon the plant as an individual.

Now, Culture *versus* Nature is a big question; and secondly, let us ask ourselves point blank whether culture of the best ever surpasses Nature at her best? In asking this question I do not wish to limit your views of culture to the glass house or market garden point of view; but I do ask it from the cultivator's or human standpoint, and not from Nature's point of view, which is often, if not always, very different. As thus limited there can be no doubt but that culture "is an art that doth mend Nature, change it rather, but the Art itself is Nature." That is a very suggestive history in the Bible, of Cain with his flocks and herds, and of his brother Abel, who cultivated the fruits of the earth, and it shows to us how early the practice of cultivating wild plants and the taming of wild animals began.

As an example of what I mean by improvement, let us take the common Violet (*Viola odorata*), as existing on a soil where it grows and flowers very luxuriantly, and on the same soil the gardener will easily surpass Nature, as I said before, from the human point of view. It is so abroad in tropical lands where Pine Apples or Bananas exist in what I may call a state of Nature, much finer crops of fruit being gained by culture; and the same is true in Asia Minor with the Fig and the Vine. Of all fruits, perhaps

the Vine is the one most amenable to changed conditions—i.e. culture—and even allowing that Grape growing in Great Britain is the best in the world, yet, I believe, still finer cultural results could be obtained at Alicante and elsewhere in S.E. Europe or Asia Minor where the Vine is more thoroughly at home.

Cultivation really means the conservation and enhancing of growth, force, or energy for particular ends or aims. One of the earliest and hardest lessons for a gardener to learn is to rid his mind of prejudice in plant culture. As a rule, we want plants to grow where we like rather than where the plant likes, and sometimes the man and the plant are not agreed on the point, for the question of position, of moisture, and of shelter is one the plant naturally knows and feels more of than the man, and though the plant cannot speak, its evidence to knowing eyes is unmistakeable.

I must now define what I mean by the human point of view, as before alluded to. Well, it very often means succulent leaves, or large pulpy fruits, or large many-petalled or shapely flowers, rather than the perfectly ripened seeds, actual life, and not mere beauty, after which Nature more generally strives. Flowers, fruit, or vegetables are the gardener's object, but Nature is lost unless she goes to the end of her cycle of growth, and finishes up by ripening her seeds. With us the gardener and the seed grower find it more economical to complete the cycle by co-operation, the one growing produce, and the other ensuring the seed. I have sketched out culture as embracing isolation of the crop, irrigation and irrigation of the earth, pruning and training, and manuring or special feeding, all factors in good culture, but factors of widely different value in various localities and soils. In a word, it is a gardener's duty to adapt his methods of cultivation to suit his crops, rather than for him to expect plants to adapt themselves to his system of culture. The best cultivators are facile and elastic in their methods, and so succeed where the "rule-of-thumb" practitioner often fails. It has been said "Many men, many minds," and so of plant culture one may say, "Many gardens, many methods." We must not be dictatorial on this question, but preserve a broad and catholic frame of mind; for a course of practice perfectly successful in one place may happen to be the very worst to adopt in another, where geology and climate may be different.

If we study the cultural practice of, say, the best Peach or Grape growers in England, in France, and in America, we shall perceive at once how necessary it is that cultural methods must perforce vary, in order to be successful under different climatic conditions. But we need not go so wide in our geography to note the truth of this statement, for gardeners will tell us that Apples and Pears, or Strawberries or Plums, or any other garden plants, vary enormously as grown in different gardens adjacent to each other, or even as grown in different parts of the same garden. That Orchids will thrive in one part of a hothouse, and not in another, is a fact well known to all cultivators of these plants. Moisture and shade may have something to do with this; but all stiff-leaved Orchids, such as *Cattleyas*, *Lælias*, &c., in growing, erect or deflect their leaves at a certain angle, so as to receive a certain amount of light, and when once the leaves harden or stiffen, they cannot alter their position, and so, if shifted, or turned round so as to expose the backs of their leaves to sunlight, great harm is often unconsciously done. A *Fuchsia*, or a *Pelargonium*, readily readjusts its leaves to altered conditions of light, but to many Orchids this is impossible.

The main facts that influence vegetation may be set down as light, heat, moisture, and the nitrogen-absorbing and yielding qualities of the soil. Elevation, shelter, and aspect influence these in a marked degree. I have elsewhere said that the gardener, like the poet, is born, rather than made, but other things being equal, of course, in all arts, the most logical practitioner is sure to succeed best. In a word, cultural success is a matter of accurate

observation, careful experiments, and just reasoning powers. The greatest difficulty in gardening is to be quite sure of our facts before we deduce or build up a course of practice upon them. When we are not quite sure of our facts, we do what Darwin advised—i.e., we try “fool’s experiments,” or index trials, so as to get nearer “guesses at truth.” The difficulty is not only the intricate complexity of Nature, but that her facts and figures often form a shifting index from year to year, or from one year to another. Thus gardening becomes an intellectual game, far ahead of the Sirdah’s chessboard or the German Kriegspiel, since both her squares and her counters are different every time, and so not only every garden but every season becomes a special study of itself.

We have been told that the gardener’s art is an empirical one; but this is a statement only half true. All arts are empirical up to a certain point, but become more and more exact and scientific as accurate knowledge is gained. Again, we are told that gardeners must be taught by actual work in a garden, just as carpentry is best taught at the bench, smith’s work at the anvil, or surgeon’s in a hospital. This, again, is a half truth, dangerous in its subtlety. Up to a certain point actual practice is truly the best way, but work in a garden, if well directed and supplemented by good reading and good lectures in addition to the work, must in the long run be better than either alone.

I should be one of the first to admit that books and lectures are merely the reflex of actual things, but by them we gain concrete knowledge, and life is, as we all know, too short to allow of our testing or experimenting on all things for ourselves. As Huxley says, “Science not only teaches us how to act rightly, but is especially valuable as often preventing our making useless experiments.” Any one man’s practice is necessarily limited, and books are as valuable to the gardener, if well used, as they are to the lawyer, the architect, or the engineer. If it be thought that they are not so, I must ask the objector for his reason why books are considered a help or aid to one artist or craftsman and not to another?

Speaking of the natural limitation of any one man’s power reminds me of my once speaking to the late Mr. John Dominy on this very subject. Everyone knows how much Dominy really did in opening the way of hybridisation amongst Orchids and Nepenthes, and he always felt that “Art is long and time is fleeting.” “Ah!” said he to me, “The fact is, a gardener should have nine lives like a cat, and three or four pairs of hands like a Hindoo idol, and then something might be done in a lifetime.”

We must use books as aids to knowledge, just as all wise men use them, and young gardeners may well treasure up Sir John Lubbock’s words, that books wisely bought and rightly used are a good investment, and not an expenditure.

(To be continued.)

GRAFTED APPLE TREES.

I HAVE seen in various directions very many old as well as young Apple trees, and indeed Pear trees too, which were grafted this recent spring, and do not present just such satisfactory aspects in the grafts as could be desired. That appearance has been attributed to the very dry weather which prevailed during May, the very month when grafting is subjected to the severest test, for if the weather then be favourable, the stocks full of vigour, the grafts healthy and properly worked, then by the end of May such complete growth should have been made as to render the future of the tree assuredly successful. It may be that much of this doubtful growth of grafts is due to the somewhat imperfectly ripened wood of last year. Something may be due to indifferent working, but of course that could not be the case in every instance; and something, perhaps very much, due to the dryness of the weather. I rather think the wood may have been largely at fault, perhaps chiefly so. But I have noticed that a good deal of the claying has hardly been done to my satisfaction. It does not seem to be sufficiently recognised that clay, however tenacious it may be naturally, requires some artificial aid in its composition when used for grafting, and the best constituent usually is found

in fresh horse droppings well beaten up so as to thoroughly disintegrate them, then well mixed with the clay. The proportion may well be about one-fourth of the former. Plenty of trouble should be taken to have the fibrous matter well incorporated with the clay. Then in putting the mixture on to the grafts I have always found that a bucket of water at hand, in which to dip the hands after the clay covering had been roughly fashioned, was a capital help to the complete finishing of the work. The smoothing off of the clay with wet hands makes a surface so close and smooth that the clay bakes or dries free from all roughness or crack, and thus even through the wettest or dryest of weather it will long remain.

It is very important that air be thoroughly excluded from the grafts, indeed that is largely the *raison d’être* of claying, and it is all the more important during such a dry spring as that has been through which we have just passed, for few grafts could have retained vitality long if their cut surfaces were exposed to strong sunshine and keen drying winds. Then in relation to success in grafting, very much depends upon the nature of the work put into the operation. I have noticed that even on large stems the grafts or scions have been from small growths. It is not possible that these can in any way do justice to the duty imposed upon them. My own rule in other days in grafting old stocks was always to select clean stout wood fully two years old, thus ensuring ripeness as well as substance. Such grafts as these would have ample youth and sap to soon become attached to the stock, and greater power presently to take up the strong flow that would soon result. Grafts of this stout kind rind-grafted, and driven in beneath the bark very firmly, need little tying, but should be securely tied in all the same. The exceeding firmness with which they are driven home, however, greatly helps to bring the cut portions of the scion and the wood of the stock into perfect touch or accord. After the tying is performed it is well just to lightly damp the portion of wood to be clayed over first, as that damping assists the clay to attach itself to the wood, whilst the damping over the outside ball of clay to give it a good clean finish, and close smooth surface, helps to render the whole impervious to air and rain. Even now, where clays have become broken and are admitting air ere the graft union is perfect, it is a good plan to go over them with some fresh soft clay and a bucket of water, and mend all such broken pieces thoroughly.

Some divergence of opinion seems to exist even amongst experienced men as to the need for some outlet for the abundant flow of sap which comes up as the season becomes warmer, for I have noticed that in one case on all old trees grafted one branch of the trees was left uncut, presumably to enable the sap to find a free outlet. That is, however, a solitary case, and the plan is not warranted by my experience. I have always found by using these stout scions on large branches that the growth the first year was remarkably robust, fine heads being soon produced. I prefer cutting even very large trees back quite hard rather than to have a quantity of small grafts on many branches, as these are less easily protected from wind, whilst the first season’s growth is never robust, so that it takes far longer to make a strong fruiting head to a tree. The art of grafting is far from being an abstruse or difficult one, and yet it is surprising to find how few can do it well. Perhaps the same may be said of budding, and such simple processes as inarching and layering. All gardeners, amateur or otherwise, can usually manage to make a cutting, but still cannot always strike it, as its success in that direction is more dependent upon after conditions than on the mere making. In the case of grafting, budding, and layering the chief success of the operation is to be found in the excellence of the work put into the operations.

—A. D.



SACCOLABIUM MINIATUM.

SACCOLABIUM MINIATUM (fig. 77) is a Javan plant introduced by Messrs. Veitch, and is figured in the “Botanical Register” for 1847. This Orchid is worthy of cultivation for the fine colour of its flowers and its dwarf habit. The stems are slender, bearing several distichous, channelled, leathery leaves. The short racemes are produced from the axils of the leaves, and carry many very pretty orange-coloured flowers. The sepals and petals spread horizontally, while the lip is slightly recurved. Plants should be grown in small teak baskets in sphagnum and crocks. If suspended

near the glass in an East Indian house and kept moist they will flower regularly every year in April or May.—C. K.

WARSCIEWICZELLAS.

THE genus *Warscewiczella* was founded by Reichenbach, but is now included under *Zygopetalum*. *Warscewiczellas* differ from the original *Zygopetalums* in having no pseudo-bulbs and in bearing solitary flowers. There are about eight species, the leaves erect and growing in tufts. Being natives of Central and Southern America they require a fairly high temperature to grow in, as well as a very moist atmosphere. The plants should be placed in shallow pans nearly full of crocks with sphagnum over the long fleshy roots; if kept moist the roots will grow rapidly, clinging to the crocks and sides of the pan. *Warscewiczellas* are difficult plants to grow well, and unless very carefully treated in the matter of moisture the leaves will spot and sometimes fall off without any warning. The coolest end of the East Indian house suits them, if well shaded. The flowers are large and fragrant, the colours are bright, the large lip is folded at the sides in a curious manner.

The following are about the best known:—

W. aromatica.—Flowers fragrant, sometimes 4 inches across, dull white, lip deep purple with crisped margin, leaves erect; Brazil.

W. candida.—Flowers white, lip rosy purple with paler margin, disc white marked with purple, leaves about 8 inches high; Bahia.

W. discolor.—Flowers yellowish green, shaded purple, lip a velvety purple, white at the base, with a crest of several teeth.

W. marginata.—Large circular yellowish green lip, yellow claw and white column; leaves dwarf.

W. picta.—Lip white shaded yellow, purple markings, sepals green, and several green teeth at the base of the lip.

W. velata.—Flowers very fragrant, sepals and petals greenish white, lip edged with crimson, disc striped with crimson, a half circle of long teeth at the base of the lip, leaves 9 inches long. Introduced from New Grenada in 1866; it is one of the prettiest.

W. Wailesianum.—Very sweet scented, sepals and petals creamy white, lip white veined with violet at the centre, teeth violet; Brazil.

W. Wendlandi.—This species has very large flowers sometimes 5 inches across, sepals and petals white, twisted, lip white veined with purple, margin crisped, several violet teeth at the base of the lip; Costa Rica.

W. Wendlandi discolor.—Scented sepals and petals, yellow green, lip white violet, blotched, margin finely crisped; Costa Rica.

W. Lindeni (fig. 79, see page 461) a charming form, having a very broad flattened lip, pure white, lined with purplish mauve, sepals and petals white. It was exhibited by L'Horticulture Internationale at the last meeting of the Royal Horticultural Society and received a first-class certificate.—C. K.

ORCHID JOTTINGS.

THERE can, I think, be no question about the wisdom of the judicious feeding of terrestrial Orchids, providing other conditions are favourable. These plants are certainly improved by it, and larger pseudo-bulbs, with bolder spikes of flowers, result. If the latter were not the case the large growth would not be sufficient to tempt us to carry on the practice. In the case of *Dendrobies*, *Cattleyas*, and others I believe it possible to produce larger growths by the aid of feeding, but they have not flowered better or produced finer blooms; in fact, from the limited experiments made, I am not warranted in recommending the practice. It is not impossible to produce larger growths than by ordinary treatment, but after the resting period the plants do not appear to be in such good condition as those that have had what to my mind is more rational treatment. I have concluded that extra size has been developed at the expense of solidity, the cells being stored with water instead of the nutrient matter so essential for sustaining the plant throughout the exhausting period of flowering. It is gratifying that there is at least one besides myself who thinks over-development might have mischievous results.

I well remember being led to follow a cool system of treatment for *Odontoglossums*, merely keeping frost from the plants during the winter. One season was ample to show that the treatment was wrong. The plants decreased in health and vigour to such an extent that two years' work became necessary to get the plants in the same condition as they were before we altered our method of treatment. I learned something, however, by the cool system that cannot be too strongly condemned. *O. triumphans* will bear with impunity a lower temperature than *O. crispum*, and the same may be said of *O. Pescatorei*, but even this kind does not recover so

quickly from a low temperature as the first mentioned. To *Ada aurantiaca*, *Odontoglossum cirrhosum*, and *Mesospinidium sanguineum* a low temperature means death; they are the first to fail. To them may be added *Masdevallia tovarensis*.

The eradication of white scale from *Cattleyas*, *Laelias*, and other plants of a similar nature seems to be almost an impossibility. No sooner are plants cleaned by the ordinary methods than they



FIG. 77.—*SACCOLABIUM MINIATUM*.

require doing again. The pests seem to establish themselves on what I may term the subterranean portions of the plant, and increase at such a rate that they can again soon establish themselves all over the plant. So far we have found no means more effectual than constant watchfulness and going over the plants with the sponge and brush at short intervals. Weak solutions of carbolic soap are certainly preferable to soft soap for this purpose. We have succeeded in cleaning plants by never relaxing our efforts until not a trace could be found. Where labour is scarce and sponging can only be done to keep the plants presentable cultivators may rely upon the labour recurring as certainly as the seasons come round. If someone could point out a method by

which white scale could be stamped out by one or two dressings without fear of injury to the plants they would save gardeners a good deal of care and worry.

Considering the good, even luxuriant, growth that fresh plump pseudo-bulbs of *Odontoglossums* make the first year after they have been imported, it has often struck me that we give our plants too much water at certain periods of the year. I have experimented so far only very slightly in this matter, but I am led to believe that plants kept on the dry side after they have completed their growth start again afterwards with greater freedom than when they have been kept thoroughly moist throughout the year. I do not recommend this practice, only commend it to the notice of growers, for it might prove the reverse of beneficial. Some good will have been achieved if the results of experience can be recorded by someone who has tried this method of culture. If beneficial we may launch out on a larger scale; if the reverse we may drop it altogether.

Yellow thrips is another of the pests we dislike to find in our Orchid houses, although it is much easier to get rid of than scale. Plants infested are carefully removed from the rest and stood over a tank of water or a tub containing water, and the moss is carefully covered with a piece of close canvas to prevent the insects dropping into it. After this the plants are damped with a spray distributor and then thoroughly dusted with tobacco powder. This is left on two or three days and then thoroughly washed off. This we have found cheaper, more effectual, and to give less trouble than fumigating. For a time afterwards, however, the plants are stood by themselves and the syringe is applied liberally. Yellow thrips cannot endure the syringe, but once they attack the plants the syringe cannot be applied to the extent that is necessary to destroy them unless some other effectual means are first taken.—R. M. B.

BLUE, WHITE, AND YELLOW VIOLAS.

It is by no means surprising that inquiries should be made as to which varieties of these popular flowers are the best for bedding purposes, but the exact information which "L. J." requires as to the three best varieties of the colours above named cannot be given in so many words, because "L. J." did not state if he preferred dark or light shades of blue, or pale or bright ones of yellow. These things are, to a great extent, a matter of individual taste.

We grow both *Violas* and *Pansies* rather extensively here, and employ them for both spring and summer bedding. I will, therefore, give the names of a few which I consider the best for the purpose, state their qualifications for the post of honour, and I have no doubt "L. J." will then be able to choose the three most suitable for his purpose. Dr. Bright is in my opinion the finest dark blue. It is compact in habit, grows well, and is extremely floriferous—in fact, it seems to be quite perfection as a bedding *Viola*, and wherever a good deep blue with a tinge of purple is wanted this variety cannot be beaten. Archie Grant is of a similar colour, but the habit of growth is not so compact and the flower stalks are longer. It is, therefore, useful for planting in lines, clumps, or any positions where a compact habit of growth is either not necessary or not desirable. Holyrood is a true dark blue in colour, free flowering, and of good habit, but the flowers are not so large or so well formed as those previously named. Blue King is an extremely useful variety, the flowers being several shades lighter than the last-named, and very attractive. This also is a good grower and free bloomer.

Countess of Kintore, though not a self, is one which everyone should grow on account of its striking and novel appearance. The centre of the flower is bluish purple, with a broad edging of white, having a pale blue tinge. Bullion is the best variety of bright golden yellow colour, and cannot fail to give satisfaction. Ardwell Gem is a fine pale yellow, and should certainly be grown where two shades of this telling colour are wanted. For bedding purposes Countess of Hopetoun is, I consider, the best of all whites. Its flowering capacities are wonderful, the colour pure white, and the flowers well formed. It should, however, be grown in good rich soil, or the growth becomes stunted. Treat it liberally and it proves a grand bedder.

The best way to raise an annual stock of named varieties is by cuttings. These spring freely from the centre of the plants early in August, which is the time to put in cuttings to have them ready for planting in April. Select sturdy suckers about 2 inches in length, and insert them in well prepared soil on a slightly shaded border. A little road sand should be spread on the surface, so that when the holes are made with a dibble a little sand will run into them and promote quick root action. If the cuttings are placed 3 inches apart they will not require transplanting till wanted

in April. They should of course be kept watered till well rooted. I would also strongly advise "F. J." to sow a few packets of mixed *Violas* and *Pansies*, as they are extremely beautiful and interesting. These should be sown at once.—H. DUNKIN, *The Gardens, Warwick Castle*.

EDUCATION IN GARDENING.

SIR,—As you may be aware, the Technical Education Committee of the Surrey County Council, instituted (amongst other things) during last autumn and winter, lectures on gardening in various centres in Surrey, and, in compliance with the request of the County Council, our Society undertook to examine all who had attended the Lectures regularly, and were desirous of sitting for such examination. Special interest attaches to this examination, as it is the first of the kind that has been made after any County Council Technical lectures on gardening; and I, therefore, hope you may be able to find space for the publication of the following Class Lists.—I am, yours faithfully, W. WILKS, *Vicar of Shirley, Surrey, Secretary Royal Horticultural Society*.

Class List.

Examination in Gardening, conducted by the Royal Horticultural Society, after lectures given under the direction of the Technical Education Committee of the Surrey County Council.

Maximum Number of Marks Obtainable 300.

HIGHER GRADE—28 CANDIDATES.

FIRST CLASS :—

1.*	Stephen Morrill, Carshalton	225	Marks.
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SECOND CLASS :—

2.	William Thorpe, Betchworth	170	"
3.	Joseph Parry, Reigate	160	"
4.	Francis Bradbeer, Betchingley	155	"
5.	{ W. Green, Horley	...	...	...	150	"
	{ J. P. Owen, Brockham, Betchworth	...	...	...	150	"

THIRD CLASS :—

7.	John Harrison, Capel	...	...	...	135	"
8.	{ T. Painter, Redhill...	...	...	...	130	"
	{ W. White, Sutton	...	...	...	130	"
10.	{ Felix Crawford, Horley	...	...	...	125	"
	{ Walter Waller, Reigate	...	...	...	125	"
	{ R. A. Stone, Horley	...	...	...	115	"
12.	{ J. A. Smith, Wallington	...	...	...	115	"
	{ Rose Jarman, Sutton	...	...	...	115	"
15.	{ John Langdon, Sutton	...	...	...	105	"
	{ W. A. Strong, Sutton	...	...	...	105	"
17.	C. F. F. Hutchings, Carshalton	...	...	...	100	"

* Wins the Royal Horticultural Society's Medal.

Candidates obtaining less than 100 out of the 300 marks not classed.

LOWER GRADE—44 CANDIDATES.

FIRST CLASS :—

1.*	Walter Smith, Kenley	...	...	...	205	Marks.
2.	Eli Caesar, Farnham	...	...	...	200	"

SECOND CLASS :—

3.	G. Miller, Ashtead	...	...	...	160	"
4.	{ W. H. Galsworthy, Farnham	...	...	...	150	"
	{ W. H. Woodgate, Kenley	...	...	...	150	"
	{ Geo. King, Egham Hill	...	...	...	150	"

THIRD CLASS :—

7.	F. Fermor, Englefield Green	...	...	...	125	"
8.	Jesse Morris, Ashtead	...	...	...	120	"
9.	W. Goody, Kenley	...	...	...	107	"
10.	A. Everard, Kenley	...	...	...	105	"
11.	{ Eleanor Partridge, Ashtead	...	...	...	100	"
	{ J. Hauchet, Aldershot	...	...	...	100	"

* Wins the Royal Horticultural Society's Medal.

Candidates obtaining less than 100 out of the 300 marks not classed.

Generally speaking, and taking into consideration the novelty of the scheme, the candidates showed as good an average acquaintance with the subjects upon which they were examined as could have been expected. We cannot doubt but that such practical teaching as has been given in the county of Surrey, and such testing of results will be of great service by calling attention to the points of greatest practical importance in cultural matters, and by showing how and why these points are important. Information of the highest practical value has thus been conveyed to a class of persons whom daily experience teaches us are not likely to be reached by the medium of the horticultural press.

MAXWELL T. MASTERS, M.D., F.R.S. } *Examiners.*
JAMES DOUGLAS, F.R.H.S. }

W. WILKS, *Secretary, R.H.S.*



CONFUSION IN NOMENCLATURE.

"LANCASTRIAN," page 488, in his closing remark, says, "I do not think I shall regret the step I have taken in sticking to the sport and consigning Golden Queen to the fire heap." This is so complete an answer to his own argument, and such clear ratification of my contention that Golden Queen and John Lambert are one and the same, that further argument is needless, therefore let me simply add that I shall be well satisfied if all growers follow "Lancastrian's" example as the best way of avoiding the confusion in nomenclature which he so forcibly admits in this case.

If I am not trespassing too much on your space I should like to reply briefly to Mr. Lambert. In respect to the point of both having been staged together as distinct by one of my own friends, this certainly did not come under my personal observation, and I presume no one can remember every line he may read in reports of shows. If Mr. Lambert had been so kind as to have given me a reference it would not have weakened his position, and many persons must wonder why the information was withheld.

The reason I did not adopt Mr. Lambert's suggested name for the blooms I staged at Chiswick was simply to avoid "confusion in nomenclature," and I venture to think this was a good and valid one. The blooms after being staged, and before any name was affixed, were submitted to several experts for their opinion, and all were unanimous that confusion must arise if any name but Golden Queen of England was attached; therefore in the interest of the public I considered my duty lay in giving a just name to the flower, even if it was detrimental to the feelings of Mr. Lambert. Whether there was a precedent for this action of mine or not I do not know, but subsequent results have amply justified the course. It has prevented disqualifications, and for this I have received thanks. The satirical remarks of Mr. Lambert do not affect me in the slightest. I judge blooms on their merits, and endeavour at the same time to prevent the insertion of superfluous names with the object of avoiding the confusion in nomenclature, which all unprejudiced persons in the Chrysanthemum world admit is most desirable. Is it necessary to say more on this subject?—E. MOLYNEUX.

[We do not think it is at present unless Mr. Lambert likes to give the reference to which he alluded.]

SOUTH SHIELDS AND NORTHERN COUNTIES SHOW.

NOVEMBER 9th and 10th have been chosen as the dates for the next Show of the South Shields and Northern Counties Chrysanthemum Show. The schedule has just been issued. It is comprehensive and well-framed. The classes number forty-seven, and the chief of them is that for thirty-six Japanese, for which £8, £4, £2, and £1 are offered. In that for twenty-four incurved the prizes are £6, £3, £1 10s., and 15s. For a group, £4, £2 10s., and £1 are provided. Altogether £40 has been added to the prize fund. It is satisfactory to note that a balance somewhat exceeding that amount stands to the Society's credit. Mr. Bernard Cowan, Harton, South Shields, is the Secretary.

LEICESTER AND MIDLAND SOCIETY.

THE Show of the Leicester and Midland Chrysanthemum Society keeps on growing. This year the Floral Hall has been secured for the Exhibition, which is fixed for November 11th and 12th, and the place is much larger and more popular than the Temperance Hall formerly used. The prize list has been materially strengthened, the aggregate value being 50 per cent. higher than at the last Show. Mr. W. Bell, Knighton Road, Leicester, is the energetic Secretary.

HEPATICAS.

ALLUSION has been recently made to these my long favourite flowers, and I should like to say a little about them. The Hepatica has been for so long a time an inhabitant of our gardens that its absence from so many would be unaccountable did we not recollect the changing waves of fashion which substituted bedding plants, and which preferred to have a dreary blank in the garden in spring

provided a gorgeous display could be had for a short time in autumn, and thus banished so many of our hardy flowers. It is a matter of rejoicing that the tide has turned, and I trust the Hepatica will secure a share of the favour of the true flower lover. Scarce as are the Hepaticas of any kind, scarcer still are the various varieties. First among these I should place the double blue *H. triloba* cœrulea fl.-pl., which does not seem to do well everywhere, but which is in my garden a most delightful plant, covering itself with buttons of the brightest blue and of the most symmetrical form. What, too, can surpass a clump of *H. triloba* rubra fl.-pl., one of the brightest of all flowers when the sun shines upon it, of equal beauty of form and colour? Then, desired of all, sought for in vain, yet possibly enough in existence, is a double white of which one has read, but which seems either to have been a myth or to have vanished in the vast destruction of choice old flowers. It is quite as probable that there is or was a double white in existence as well as a double blue or red, and the mention of it by Glenny in one of his books has caused much speculation and inquiry. He says in his "Handbook to the Flower Garden" (London, 1850), page 10, "There are three colours—pink, blue, and white, and of these there are also double and single," . . . "but the double white is very scarce if not altogether lost."

It is not only in recent years that this variety of the Hepatica has been an object of desire, for Philip Miller, in his "Gardeners' Dictionary" (London, 1735), deems it worthy of some remark, and says:—"I have seen the Double White Kind often mention'd in Books, but could never see it growing." . . . "I have sometimes known the Double Blue Sort produce some flowers in autumn which were inclining to White." . . . "But whether the Double White Sort mention'd in the Books was only this accidental Alteration in the Colour of the Flower, I cannot say; though it seems very probable it was since I never could hear of any Person who ever saw the Double White Sort flower in the Spring." James Justice, who appears to have had a keen appreciation of many flowers, tells us in his "Scots Gardener's Director" (2nd edition, Edinburgh, 1759) that Ray in his "Flora" says the double white Hepatica was in England, and that he (Justice) sowed seeds seven years in hope of raising this flower, but was unsuccessful, although he "raised many Singles and Semi-doubles of various Whites, Flesh, and Carnation colours; and I will try again for it to obtain this flower, for I am told the Florists in Holland have obtained it from Seeds." It is Samuel Gilbert, however, who published the second edition of his "Florists' Vade Mecum" in 1693, who gives us the most precise note on the double white Hepatica. He says:—"The double white hath fresher and smaller green leaves than the rest; snow white, and as thick and double as the peach or blue, but more rarely met withal, and therefore more regarded; yet all of them the prettiest beauties the spring at her first approach exposes to our view."

But if this much-desired plant is lost, and is only to be recovered through the long-sustained labours of seedling raisers, we cannot with reason complain of want of variety among the single Hepaticas. The single blue is perhaps the best known, and a clump in full flower is a most beautiful object in the garden. A fitting companion to it is the single red with fine bright blooms, and equally beautiful in a mass. With these may be associated the single white, which has somewhat small flowers, but when grown in quantity is very fine also. These are the varieties most frequently met with, but there are others in cultivation, and some of them I have only recently been able to obtain. Perhaps the brightest of all is a single red variety known as *H. triloba* rubra var. *splendens*, which is extremely beautiful. Equally fine, although not so showy, is *H. t. rosea*, a delicate but extremely pretty rose-coloured variety, still rare. Then there is a pretty white variety with coloured anthers, a white tinged with flesh colour, and a deep blue purple named Barlowi.

These, with two varieties of *angulosa*, are the twelve in my garden, but there is another named *H. t. variabilis*, with flowers varying from lilac to blue or white, and changing with the season. This variety is said to have marbled foliage, and I hope to procure it shortly. Nor must the large flowered *H. angulosa* with its fine blue flowers and large handsome five-lobed foliage be omitted. This is very beautiful, although a shy bloomer in some gardens. There is a larger flowered variety named *H. a. major*. *H. angulosa* is a native of North America, while *H. triloba* is a native of Europe. There is said to be a new variety or species offered by a French florist, but it is possible that it may, like *H. acutiloba*, present few points of difference from the others.

I have left myself little space for notes on culture. I find the plants do well in almost any position and in various soils, but mostly of a somewhat light, rich nature. There is a difference of opinion as to the time for planting and dividing, but I prefer the spring, as if planted in autumn they are frequently lifted by the

frost. The less, however, they are disturbed the better, as it is only when seen in a mass that their beauty can be fully realised.—S. ARNOTT.

LIVERPOOL NOTES.

ORCHIDS AT ALLERTON BEECHES.

THE pretty little house set apart for these when in flower was particularly gay on a recent visit being paid. Amongst the more notable were *Cypripedium barbatum nigrum* with thirty flowers, and good plants of *C. Schrödera* and *C. superbiens*, *Oncidium macranthum* with ninety-six flowers, *Masdevallia Veitchi grandiflora* in 10-inch pots with 114 spikes, *Odontoglossum Coradinei* with twenty-eight flowers (very pretty), *O. Alexandræ* in variety, and a fine plant of *Cattleya Sandcriana*, a peculiarity in it being a bulb without a leaf, carrying four fine flowers. The useful old *Cattleya Mossiæ* was represented by many plants and varietal forms. Other kinds, too numerous to mention, were helping to swell the display.

CYPRIPEDIUMS CALCEOLUS AND SPECTABILE.

These two hardy *Cypripediums* are so seldom met with that I was thankful to Mr. Edwards, the gardener at Allerton Beeches, for having drawn my attention to them. On the top of a piece of rockwork fully exposed the former had just gone out of flower, but ensconced in a little nook lower down was *C. spectabile*, just pushing up its spikes. To those about to try the cultivation of these plants, or to those who have failed hitherto, it may be interesting to learn that the following composts answer perfectly—viz., for *C. Calceolus*, pieces of limestone and Kentish loam; and for *C. spectabile*, peat, sand, and moss.

BEDDING CALCEOLARIAS AS POT PLANTS.

As seen in 10-inch pots arranged at intervals the whole length of the beautiful corridor at Cleveley, Allerton, the usefulness of these *Calceolarias* for decorative purposes, also for cut blooms, could not be ignored. Many of the plants would have measured 5 feet across, and the light variety is a most telling shade of yellow when seen in large masses. To the professional, as well as the amateur and cottager, their beauty appeals alike. As soon as the plants are over in the beds select some of the best, lift with good balls of soil, and place into pots of various sizes, using loam, leaf mould, and sand. Keep them in a house during winter from which the severest frosts are excluded, and when starting place them in an early vinery or warm house. From these transfer them to a house a little cooler or into the conservatory. These plants will be a welcome addition to the structure, and repay the small amount of trouble they require. Orchids are grown equally well by Mr. Cromwell, the gardener.

ORCHIDS AT HILLSIDE, ALLERTON.

Hillside is the residence of Colonel Wilson, and Mr. Healy is the able gardener. Arranged in a very small house were some well flowered specimens of *Lælia purpurata*. One variety called *purpurata rosea* was noticeable by the deep rose which suffused the petals. Six plants were in bloom, and carried about fifty flowers, all of very fine form and substance, whilst a few were just over. The *Cattleya Mossiæ* were good types, healthy plants, and finely flowered, something to be proud of considering the short period Orchid growing has been carried on there.—R. P. R.

ROYAL HORTICULTURAL SOCIETY.

JUNE 7TH.

SCIENTIFIC COMMITTEE.—Present: Mr. Morris (in the chair), Mr. McLachlan, the Rev. W. Wilks, and the Rev. G. Henslow, Hon. Sec.

Cattleya Mendeli, *Monstrous*.—Mr. Wilks exhibited a spray bearing two flowers, both of which were dimerous, in that there were only two lateral sepals, the anterior one being wanting. One of the pair of anterior petals was present and situated nearly normally, but the lip was peculiar in having one half of the form and colour of a labellum, while the other half had that of an ordinary petal. This suggested the idea of a fusion having taken place between a petal and the lip, only half of each organ, however, being present. Without negating the possibility of this being the case, an examination of the origin, form, and distribution of the fibro-vascular cords entering this complex organ, suggested rather that it was not two, but really only one organ which had developed one half as a lip the other half as a petal, just as in semi-double flowers a stamen will often develop one anther cell, the other being petaloid. With regard to the position of the parts, while the two sepals were strictly "right and left," the common (transverse) axis of both the petals and of the column was shifted, and so became unsymmetrically situated with regard to the sepals. The ovary cell was replaced by an irregular cavity, with no trace of placentas or ovules.

Iris florentina.—Mr. McLachlan brought a normal flower taken from the same plant from which he exhibited three petals at the meeting held on June 23rd, 1891. They were half white and half purple. The question was then raised whether it was an indication of reversion to *Iris germanica*, supposing the plant to be a pale variety of that species, or the result of a cross between *I. germanica* and *I. florentina*. A comparison made at Kew with the present flower proved it to be the typical *florentina*, which differs particularly in the form of its "falls," these

being markedly different from those of *I. germanica*, in that they are more contracted towards the base than is the case with the latter species. The pale variety is known as "albicans," and is quite distinct from *I. florentina*; consequently the appearance of the purple colour on the petals of this species is the more unaccountable.



ROSE SHOW FIXTURES IN 1892.

- June 21 (Tuesday).—Westminster (N.R.S.).
- " 23 (Thursday).—Rydc.
- " 28 (Tuesday).—Maidstone.
- " 29 (Wednesday).—Brighton*, Farningham, Ipswich, King's Lynn*, and Richmond (Surrey).
- " 30 (Thursday).—Canterbury, Eltham, and Winchester.
- July 2 (Saturday).—Crystal Palace (N.R.S.)
- " 5 (Tuesday).—Bagshot, Diss, Earl's Court*, Gloucester, and Sutton.
- " 6 (Wednesday).—Brockham, Croydon, Farnham, and Hitchin.
- " 7 (Thursday).—Bath, Lee*, Norwich, Windsor, and Woodbridge.
- " 9 (Saturday).—Reigate.
- " 12 (Tuesday).—Hereford and Wolverhampton.†
- " 13 (Wednesday).—Tunbridge Wells.
- " 14 (Thursday).—Helensburgh.
- " 16 (Saturday).—Chester (N.R.S.).
- " 19 (Tuesday).—Moseley* (Birmingham), and Tibshelf.
- " 20 (Wednesday).—Christleton.
- " 21 (Thursday).—Trentham and Worksop.
- " 23 (Saturday).—Bedale and New Brighton.
- " 28 (Thursday).—Halifax and Southwell.
- " 30 (Saturday).—Ripley.

* Rose Shows lasting two days. † Rose Show lasting three days.

—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

ROSE JUDGING.

I AM sorry I was mistaken in supposing that Mr. G. Paul had not read the previous correspondence, but there was certainly nothing in his letter to show that he apprehended the points which required explanation in his paper in the "Year Book." These were, especially whether he admitted degrees of goodness or badness, and whether he meant that what he calls "a bad Rose" should have no points at all. "An Old Showman" (we are glad of a fresh view of the matter) takes it that Mr. Paul would admit of no such degrees, and would give no points to what he calls "a bad Rose." I still cannot think that this is so. I do not see any escape under such a theory from the absurdity of every Rose having either three points or none at all. Besides, Mr. Paul must not only know well the judging rules of the N.R.S., but probably had an influential hand in their formation. These rules clearly admit of degrees of badness and goodness. "Page 12. Points:—1, Three points shall be given for the best blooms; two for mediums; one for those not so good but not bad enough to cut out, and an extra point for a very superior bloom. Pick out a type of a three-point Rose, and refer to it when necessary . . . 3, One point shall be taken off for every case of decided badness."

If we could get from Mr. Biron or Mr. Paul a statement that by "a bad Rose" they mean one which fails to reach the chosen three-point standard, and that such a Rose should have no points, or even minus one, then it would be plain that their opinion is, as "An Old Showman" takes it, for absolute perfection or absolute condemnation for every Rose. But we have not had such a plain statement, or if we have I have missed it. In one sentence in his letter Mr. Paul seems to admit degrees of badness and goodness. "A flower to be fit to be shown should be as far as possible perfect in some more or less degree (the italics are mine) in all three points—form, colour, and size." But in the very next sentence he seems to refuse it. "If it be defective in any of the three points it is a bad flower, and should count as such." It is certainly true that I have not succeeded in discovering the point of misunderstanding between Mr. Biron and myself, but I do not see that Mr. Paul has found it.

A further objection to the terms "good Rose" or "bad Rose" may be found in the old rule-of-thumb system of judging before points were used. This was simply to go over the stands and count the number of "good Roses" in each, an arbitrary and casual method, which took generally little or no account of any that fell beneath the ideal standard. And, as frequently no such ideal was agreed upon by the judges, it was probably only because the competition was seldom so severe as it is now that there was not more dissatisfaction.

I am glad to see that "An Old Showman" challenges me on the other matter, because I felt sure there was a real difference of opinion

on this head, which may perhaps be lightened by discussion. I would remind him that it is not I but the N.R.S. who recommend one standard for all varieties, as already quoted. We could not possibly pick out types for each variety. If he will not use the abused terms "good" and "bad" I shall agree with him that a small Charles Lefebvre would be of equal (not greater) merit than a Duchesse de Caylus of the same size; but I should prefer to put it the other way about—viz, that a full-sized Duchesse de Caylus would be of as little merit as a Charles Lefebvre of the same size. He will see that the tendency of this would be to exclude varieties which do not come up to the standard, and the N.R.S. has endorsed this view in this particular instance by recommending that Duchesse de Caylus be removed from their catalogue of exhibition varieties.

It is the function of the N.R.S., I take it, not to be lenient to "the nature of the beast," but rather to force inferior sorts to give way gradually to the superior ones. And I think if "An Old Showman" will consider the case of judging a class of "twelve of a sort" he will see that I am right. Taking the same examples, if he had before him one box of twelve perfect full-sized Charles Lefebvre and another of twelve perfect full-sized specimens of Duchesse de Caylus, he would surely give the prize to the former, and the latter would fail, though the fault would rest, not with the individuals, but with the variety.—W. R. RAILLEM.

NEW ROSES OF 1892.

THE FRENCH CONTINGENT.

THERE have been times—few and far between, indeed—when the French and English armies, instead of being pitted against each other, have fought side by side, and in those cases, as in the Crimea, the French contingent has largely outnumbered the English one. So it has been in the Rose armies of our Queen; for, oh! how long a time was there but one solitary English sentry to be seen—Devoniensis! Then one and another appeared, and although now they are more frequent, yet undoubtedly they form a very small portion of the forces that generally muster for the conflict. Critics say that the French soldier has deteriorated, that he has not the *élan* he once had, that he is sooner dispirited, and has lost much of his characteristic briskness. Well, critics are sometimes right, but they not infrequently err from want of clear-sightedness. And so it may be in this case. Very much the same has been said, and said with truth, of the later levies of the French army of Roses. We get no such Roses now as we used. The years that astonished us with such royal specimens as Charles Lefebvre, Marie Baumann, Alfred Colomb, Baroness Rothschild, Camille de Rohan, &c., are dreams of the past; while amongst Teas, has anything of recent years beaten Anna Ollivier, Catherine Mermet, Souvenir d'Elise, and Maréchal Niel? The charm of it is that we have still these beauties amongst them, and can test their claim to our loyal devotion. We heard of the beautiful Miss Gunnings, and we say, I daresay they were not as handsome as they are said to have been; but these much-loved Roses we can see and handle for ourselves. In this class, too, how few are there of late years which can lay claim to such respect at our hands? An Ernest Metz, Madame Hoste, or Cleopatra for a while turn us aside, but we return to the old ones after all.

This dearth of good new Roses from the French raisers is, perhaps, in no way better evidenced than by the fact that up to this time (the beginning of June) not a word has been, as far as I know, published in any of the gardening papers about the novelties announced from the Continent; yet they are as numerous as ever, described in as high-sounding titles and lavish expenditure of adjectives as ever, very different to the simple emphatic word with which a very good English Rose grower described them—"rubbish." As I do not know anything about them from private sources I had better, I think, just give their names and descriptions, and add a few remarks on the whole list. Let us first take the Teas, of which thirty-six are announced, including a few of American and English origin.

TEAS.

Madame Coleomber (Bernaix).—Lovely carmine with white and rose centre, small. A buttonhole Rose, a seedling from Hermosa, very fine flower.

Edouard Littaye (Bernaix).—Flower carmine rose, tinted with amaranth, passing into a pale rose with centre violet red, large, full, with conical oval buds; tree vigorous, abundant flowering.

Elise Heymann (Soupert & Notting).—Flower yellow copper shaded nankeen yellow, centre peach rose, very large, full, well made. Vigorous plant, seedling between Madame Lambard and Monte Rosa.

Etoile Polaire (Tessier).—Flower peach rose bordered with yellow, centre brilliant coppery salmon, cochineal red at the base, medium or full size, cup shaped; buds globular, very sweet scented.

Geneviève Goujon (Vve. Schwartz).—Cream shaded with light rose flower, centre clouded with carmine and salmon rose; large, double.

Germaine de Moreste (Guillot).—Cream white rose with light salmon centre; large full, well made, holding itself well.

Golden Gate (Dingée & Conard).—Cream white flower, centre and base of petals golden yellow often shaded with light rose, very large double, long and pointed bud, growing singly. Seedling between Safrano and Cornelia Koch. Good for forcing.

Grande Duc Héritier Guillaume de Luxembourg (Soupert and Notting).—Silvery salmon flower shaded with light rose; centre shaded with yellow, large, full, imbricated. Seedling between Catherine Mermet and General Schublikine. Good for forcing.

Grande Duchesse Adelaide de Luxembourg (Soupert & Notting).—Delicate shining yellow, centre darker, very large, full imbricated, exterior petals large. Seedling between Sylphide and Marie Van Houtte. Good for forcing.

Grande Duchesse Héritier Hilda de Bade (Soupert & Notting).—Light nankin yellow flower, centre chrome ochre; large, very full, and very fine shape; growing singly. Seedling between Sylphide and Marie Van Houtte.

Henry M. Stanley (Dingée & Conard).—Light rose flower, shaded in places with salmon, very large and full, and very sweet scented. Seedling between Madame Lambard and Comtesse Riza du Parc.

H. Plantagenet, Comte d'Anjou (Tessier).—China rose, slightly purple, lighter at the base; the reverse of the petals tender rose, very large, full, and solitary; footstalk very firm.

Jessie Fremont (Dingée & Conard).—White flower, passing to rosy-flesh colour, shaded with coppery red in places; not very full. Seedling of Duchesse de Brabant.

Le Soleil (Dubreuil).—Yellow flower, between chrome and canary; very large, very full; cup shaped.

Madame Benoit Rivière (Liabaud).—Apricot yellow flower, with a salmon rose centre; large, full, erect, sweet scented.

Madame Bessonnet (Moreau-Robert).—Light yellow, shading to a creamy white; large, full, opening well; globular.

Madame Bonnet des Clanches.—Cream white flower, shading to light yellow near the centre; very large, very double, and scented.

Madame la Général Gourko (Soupert & Notting).—Brilliant silky rose, salmon yellow centre, edges lake rose; large, full, petals large, buds long. Seedling between Général Schublikine and Monte Rosa.

Madame Louis Patry (Tessier).—Pale purplish rose flower, with yellowish spots, centre shaded China rose colour with clear marks on outside; very large, full, globular; stiff stalks.

Madame Nelisson.—Light citron flower, partly double, scented, flowering both late and early.

Madame Victor Caillet (Bernaix).—Pæony red, reverse of petals carmine, shaded with salmon, passing to white; medium or very large; exterior petals concave, those in centre crumpled and folded—red and white flowers growing on the same tree.

Mdlle. Thirion Montauban (J. Pingrave & Chauvry).—White flower with light yellow centre, edge of petals rose colour and pencilled with red in places, large full in cup, round bud opening well. Seedling of Shirley Hibberd.

Marie Page (Leerrier).—Pale rose with yellow centre, outside of petals carmine red, very bright at the edges, large, full, stalk strong. It resembles Comtesse Riza du Parc, but is darker.

Maud Little (Dingée & Conard).—Delicate China rose with a particularly brilliant tint—seedling of Pierre St. Cyr and Duchesse de Brabant.

Pearl Rivers (Dingée & Conard).—Ivory white flower delicately bordered and shaded with light rose, large, full, very sweet scented. Seedling between Devoniensis and Madame de Watteville.

Pink Perle des Jardins (Nauz & Neuner).—Rose coloured flower, large. Very sweet. Offshoot of Perle des Jardins.

Rainbow.—Rose coloured flower striped and mottled with carmine, beautiful striped rose.

Rosario Custel (Ketten).—Pearly rose, centre blush.

Senateur Loubet (Reboul).—Pale rose-coloured flower verging on metallic yellow near the centre and passing into poppy coloured red when in full bloom, large, very full and centre petals finely fringed.

Souvenir de Madame Levet (Et. Levet).—Dark orange yellow flower, large, full and well made, opening well and very sweet, stalks firm.

Souvenir de Pierre Magne (J. Purgaveaud & Chauvry).—Dark China Rose, copper-yellow at the base, shading off into light rose medium sized or large, half double, long buds. Seedling from David d'Angers and Mad. Bérard.

Tillier (Bernaix).—Dull carmine red flower, shading off into a reddish violet, medium sized, very double, often imbricated.

Vicomtesse du Chaffaud (Reboul).—Buff coloured Rose, large, very double, opening well, cup shaped.

HYBRID TEAS.

Auguste Itelens (Guillot).—Purple red Rose, large, full, globular, holding itself well, very sweet.

Baronne G. de Noirmont (Cochet).—Light, pale salmon rose coloured flower, shading off into white, large full globular roundish bud, opening with firm stalk, very sweet.

Grand Duc Adolphe de Luxembourg (Soupert et Notting).—Light pinkish red flower, on the reflex bright lake geranium shade; very large, nearly full; long bud. Seedling between Triomphe de la Terre des Roses and Mad. de Loebel sels.

Kaiserin Augusta Victoria (Lambert & Reiter).—Outside petals of the flower creamy white, the inside ones Naples yellow shading into orange yellow in the centre; large, very full, imbricated; very sweet; long upright bud; good for forcing and cutting.

La Fraicheur (Jos. Pernet Ducher).—A white rose shaded off into bright rose carmine; very large, cup shaped. Seedling between Victor Verdier and Mad. Falcot.

Madame Jos. Bonnaire (Bonnaire).—Bright China rose; very large, full, and opening well. Seedling between Adam and Paul Neyron.

Madame Pernet Ducher (Jos. Pernet Ducher).—Canary yellow flower; outside petals tinted with carmine, shading off into creamy white; middle-sized or large; nearly full; bud turbinated, and very pretty.

Veuve Menier (Vve. Schwartz).—Pale rose-coloured flower; ground colour rosy white, shaded blush and light carmine, spotted with yellowish petals; large, very full frilled; a perfect shape. Seedling from Camoens.

HYBRID PERPETUALS.

Belle Iryenne (Lévêque).—Bright red rose, shaded with white and carmine; very large and full; opening well.

De Morand (Vve. Schwartz).—Bright crimson red flower, shaded with lilac purple; edge of petals reddish white; large, full, imbricated, and opening well. Seedling of Gen. Jacqueminot.

Frère Marie Pierre (Bernaix).—China rose flower, shading off into carnation; very large, and full; very sweet; cup shaped; bud erect and single. Seedling of Baronne Rothschild.

General Baron Berge (Pernet père).—Garnet red flower, the outside petals shaded with violet; large, nearly full; very sweet; perfect shape.

Jeanne Masson (Liabaud).—White flower, carmine on the reflex; middle size or large, often globular, often cup shaped. Very sweet. Excellent for forcing.

L'Ami Maubrey (Renaud Guépet).—Light red flower, shaded with pale violet; very large double, and very sweet. Seedling of Xavier Olibo.

L'Étincelante.—Bright red flower, slightly velvety inside; very large, cup shaped; sweet. Seedling of Bijou de Couasnon.

Madame Anatole Leroy (Anat Leroy).—Tender rose-coloured flower, large and full.

Madame Benoist (Moreau Robert).—Light satiny rose colour, very large, full, flat, and sweet.

Madame Edouard Michel (Liabaud).—Light full rose, very large, full, and sweet scented. Seedling of Madame Gabriel Luizet, which it much resembles, only darker. Good for forcing.

Mademoiselle Dubost (Pernet, p.).—Light carmine-red, darker in the middle; middle size or large; nearly full, stalk firm. Seedling of Victor Verdier.

Mon Rêve (Vigneron).—Lilac rose flower, getting paler towards the end of the petals, darker in the centre; large, full, globular, and very sweet.

President Carnot (Degressy).—Light rose coloured flower, shaded off into carmine on the reflex; large, full, well made, and very sweet.

Princesse A. de Wagram (Cochet).—Bright purplish-red flower, shading off into bright carmine-red; large, very full, long bud.

Professeur Charquerand (Lévêque).—Dark red flower, marked with brown and poppy colour; full and large.

Souvenir de Jean Sisley (Dubreuil).—Dark purplish-carmine flower, shading into magenta and amaranth; large, full, and very sweet.

Souvenir de Louis Moreau (Moreau Robert).—Dazzling fiery red flower, shading off into dark crimson; large, full, and globular.

Souvenir de Madame Dor (Liabaud).—Fine blueish-purple flower, velvety, mingled with crimson; large, full, cup-shaped, and very sweet.

Now what is to be said of all this wonderful list of names and glowing descriptions? One Rose grower said to me, "Nothing but rubbish;" still, we may hope that is too sweeping a condemnation. Where the names of Guillot, Schwartz, and Liabaud appear we may hope for something not altogether so bad as to be classed under that title, but, as I have said, the experiences of the past few years have not led us on this side of the channel to expect much, and therefore according to the old saying, we shall not be disappointed.—D., Deal.

NOTES OF PRESENT INTEREST.

MARÉCHAL NIEL ROSE CUTTINGS.

ABOUT this time cuttings can be readily procured from this delightful Rose, and several have found (the writer among the number) that canker attacks Roses of this variety on their own roots less frequently than on any stock, and canker is the great evil to which the Maréchal is subject. How best to root the cuttings is the question. After various experiments in the open, the greenhouse, and under hand and bell glasses with and without heat, I have come to the conclusion that the easiest, quickest, and surest is in a wide-mouthed bottle of water full in the sunshine, and when callusing has taken place transferring them to a bottle of silver sand saturated. Roots are emitted quickly, and the plants may be then potted singly at leisure in small pots and repotted at intervals.

TROPEOLUM MRS. CLIBRAN.

I had this on trial last year, and in dwarfness, floriferousness, and compactness it exceeds anything of the kind I ever noticed before. A line would strongly remind one of *Crocus communis*, a delightful bright orange yellow in summer instead of spring. One can easily understand how it would contrast with coloured Beet, the various Pelargoniums, Coleus, or fifty other customary lines of bedding stuff. Your note on page 415 only does this acquisition justice.

SLUGS.

I never saw such a scarcity of slugs. I need hardly remark that I am not regretting the fact, but rather rejoice, as mine is a town garden, and such gardens are peculiar victims of their ravages. I attribute the fact to the heavy falls of snow in February and again in March, after soft weather, when they were suddenly caught away from their customary winter lairs. Frost is not so injurious to them, as it comes on gradually and gives them time to escape.—W. J. MURPHY, Clonmel.



EVENTS OF THE WEEK.—A meeting of the Linnean Society takes place to-day (June 16th), and the Yorkshire Gala is continued to-day and to-morrow at York. On the 21st the fortnightly Committee meetings of the Royal Horticultural Society will be held at the Drill Hall, James Street, Victoria Street, Westminster; and in conjunction with them will take place the National Rose Society's Exhibition of Teas and Noisettes. The Royal Oxfordshire Commemoration Show is fixed for the same day. On the 22nd a floral fête and children's floral parade will be held by the Royal Botanic Society in the Gardens, Regent's Park.

— THE WEATHER IN LONDON.—The cold wave referred to in a paragraph below reached London on Saturday, but its full effects were not appreciable until Sunday, when the temperature was very low and drizzling rain fell. On Monday it was drier and brighter, but still cold, and on Tuesday the wind remained northerly, the cold wave continuing. The barometer also commenced to fall. On Wednesday the weather became warmer, but the wind remained in the north-east.

— SUNSHINE IN 1892.—Up to the present time the actual proportion of sunshine in the South of England has been 4 per cent. higher than in any year since the establishment of the recording instruments in 1881, and 10 per cent. in excess of the average for the ten years 1881-1890.

— THE WEATHER—A COLD WAVE.—The weather underwent a change in Scotland at the end of last week, which spread southward. In Scotland the change took place on Thursday evening, the wind shifting to the northward; and on Friday the temperature was from 12° to 20° lower than on the previous day. In Edinburgh the maximum was 83° on Thursday, and 52° on Friday, or a difference of 31°; the latter was the coldest June day for twenty years. The weather was extremely cold in Perthshire on Saturday, the Grampians being white with snow. It also became colder in the northern and midland counties of England, and on Sunday the cold wave had reached the south. In London the maximum for the day was only 51°, or 18° below the average, and 32° lower than Friday. Light rain fell during the greater part of the day.

— A NEW LONDON MARKET.—The new City fruit and vegetable market, recently erected by the Grand Markets Committee of the City Corporation, Smithfield, was opened on Monday last, the Lord Mayor attending in state. It is situated at the junction of Charterhouse Street and Farringdon Street, and is, therefore, close by the meat market. It has a frontage of about 370 feet to the former road, and about 184 feet to the latter. The building is of iron and glass, occupying 30,000 feet super out of the 54,000 feet available, so that there is room for extension when wanted. The basement is occupied by the Great Northern Railway Company, and the transmission of produce will be very quickly and easily effected by hydraulic lifts and inclined cart roads. The Lord Mayor, in opening the market, pointed out that the capital sum expended by the City of London in markets amounted to something like £3,300,000. He congratulated Londoners on the acquisition of a new means of distributing such immensely important supplies as fruit, vegetables, and flowers.

— CAUTION.—It has come to our knowledge that Lewis Castle, who was formerly on our staff, and whose connection with this Journal ceased on the 31st of March last, has since received money, ostensibly for a subscription, on our behalf, and which he has retained in his possession, without giving any receipt for the same; we therefore caution the subscribers to this Journal to pay no money to the said Lewis Castle, under the belief that he is associated with this office.

— LETTUCE BLACK-SEEDED BATH COS.—This is still one of the best varieties for withstanding the winter without any protection. Last winter was a very trying one for all green crops, but this Lettuce is so hardy as not to feel the effects of the wintry weather. At the present time we are cutting good heads. The outer leaves are brown, but the inner are a beautiful golden colour and wonderfully crisp. This is not a sort that runs quickly to seed like some. It would be difficult to conceive a better Cos Lettuce for standing the winter without any protection.—E. M.

— **DEATH OF MONS. MARGOTTIN.**—The death is announced of Mons. Margottin, the well-known rosieriste of Bourg-la-Reine, near Paris, at the age of 74. He raised many good Roses.

— **MIDLAND PANSY SOCIETY.**—We arranged for a report of the 'Show of the Midland Pansy Society, held at Birmingham on the 9th inst.; but it had not come to hand at the time of going to press, having probably been delayed in the post.

— **MANSFIELD HORTICULTURAL SOCIETY.**—The seventeenth annual Exhibition of the Mansfield Horticultural Society has been fixed for Monday, August 1st. The schedule has been strengthened by prizes of £10, £5, and £3 for a group of plants.

— **QUEEN WASPS** have been very plentiful here this spring, the garden men have killed seventy-eight. Last year they destroyed over sixty, and after that slaughter we had sufficient left to destroy a quantity of fruit.—G. F., *Glendaragh Gardens, Teignmouth.*

— **BOSTON EXHIBITION.**—The twenty-first annual Exhibition of Roses, flowers, poultry, &c., will be held at Boston on June 29th and 30th. Schedules can be had from the Secretaries, Messrs. J. G. Killingworth & Son, Corn Exchange, Boston. Entries close on June 16th.

— **LATE BROCCOLI.**—Amongst the several late Broccoli mentioned by the correspondents in the Journal, allow me to add one more to the list—namely, Methven's June. It is one of the hardiest I have grown; we cut our last on the 8th inst. They were planted in a good position, facing south. Other seasons when planted on a west border I have cut them as late as June 24th. They are of a good size and very white.—WILLIAM RUSHTON, *Duntocher, N.B.*

— **VIOLA DUKE OF CLARENCE.**—Herewith I send you three blooms of this new Viola that was exhibited at the Birmingham Pansy Show, and to which a first-class certificate was awarded. It is of close free habit, a good grower and bloomer, and the colour rich glossy black velvety violet, with blue lilac markings in the top petals. It is a very beautiful and distinct variety, but I am afraid the blooms will fail to convey a just idea of their beauty and form, as they had to endure a tropical day.—WM. DEAN.

— **WEATHER DURING MAY AT RIPLEY, YORKS.**—The month opened very cold, and continued so more or less until the 14th. After that date it became much warmer and rain fell more frequently and in larger quantities, thus stimulating vegetation into active growth, which we were glad of, as everything was in a very backward state. Rain fell upon twenty days. The total fall for the month was 2.93 inches, of which 0.93 inch fell in six hours during the early hours of the morning of the 28th. Mean reading of barometer, 30.03; mean maximum temperature, 61.3°; mean minimum temperature, 38.4°; mean temperature, 49.7°. Frost was registered upon nine days.—J. TUNNINGTON, *Ripley Castle Gardens.*

— **FLOWERS AND PLANTS FOR THE LONDON POOR.**—Lord Monks-well writes from the offices of the Kyrle Society, 49, Manchester Street, Manchester Square, London, W.:—"I ask your kind permission to plead for gifts of flowers for the London poor, by whom they are received with pleasure and gratitude. You are aware that the number of open spaces in London has much increased, and with their increase comes also a demand for plants of all kinds for stocking them, so that we shall be thankful for gifts either of these, or of money to buy them. I shall be very much obliged if any intending donors will communicate with the Hon. Secretary of the Kyrle Society in the first instance. The address will then be given to which their kind gifts may be sent direct, as, there being no storage place at the office, packages cannot be received."

— **EARLY PEAS.**—I am sending samples of Peas William Hurst (good-sized full pods), Veitch's Exonian (small full pods), and Sutton's A1 (large nearly full pods). All three varieties were sown in the open on January 18th, William Hurst on a south border, Exonian and Sutton's A1 on a slope facing east. We picked the first dish from William Hurst on June 4th (had we required them I could have picked a week before), and every day since; Veitch's Exonian was ready four days later. Sutton's A1 is a splendid Pea, but takes longer than either of the above to fill the pods. Last year it did well here, and continued bearing for a long time. Had I been like your correspondent Mr. F. Witt (page 435), the happy possessor of a sewage tank, I might have helped them on a little faster; but as I am not, they had to do without such assistance. I always take out trenches as for Celery, digging in plenty of manure for both early and late Peas.—G. FOSTER, *Glendaragh Gardens, Teignmouth.*

— **PLYMOUTH SHOW.**—We have been favoured with a newspaper report of the above Show, but as it arrived ten days after date was somewhat too late for insertion. The Show is said to have been a complete success, Messrs. James Cypher, Cheltenham; J. Lock, Crediton; C. A. Fox, Widey Court; C. Watts, Plymouth; and F. Bradshaw, Lifton Park, being the chief prizewinners in the leading classes.

— **GARDENING APPOINTMENTS.**—Mr. William Tuck, for the last two years foreman and decorator to Sir Matthew Wilson, Bart., Eshton Hall, Yorks, has been appointed head gardener to R. B. Evcred, Esq., Oatlands, Horley, Surrey, through Messrs. J. Laing & Sons, Forest Hill, S.E. Mr. George V. Parker, for the past three years foreman at Benham Park, Newbury, has been appointed gardener to A. Montagu, Esq., Ingmanthorpe Hall, Wetherby.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th instant, at 7 P.M., the following papers will be read:—"English Climatology, 1881-1890," by F. C. Bayard, LL.M., F.R.Met.Soc.; "The Mean Temperature of the Air on each day of the year at the Royal Observatory, Greenwich, on the average of the fifty years 1841 to 1890," by William Ellis, F.R.A.S.

— **MISCHIEF IN GOD'S ACRE.**—A large amount of damage was maliciously committed to plants and a frame cover in the Cuxton Road Cemetery, Strood, during the night of Thursday week. Some evil disposed person climbed over the wall at the side of the cemetery, and with a knife inflicted several long gashes upon a new frame cover. About 300 plants were also destroyed, the damage being estimated at about £6. Up to the present no clue as to the depredator has been discovered.

— **FERNS AND FERN CULTURE.**—Mr. John Birkenhead sends us his Handbook, which bears the above appropriate title. The author has said as much about Ferns, and said it well, as could be compressed into 126 pages. There are selections of Ferns for every purpose and position to which these graceful plants are adapted. Instructions on propagation are clearly and concisely given, and approved methods of insect eradication pointed out. The work is well printed and profusely illustrated; it is attractive as well as instructive, and an admirable shillingsworth.

— **MULCHING.**—This consists in laying on a few inches thick of half-decayed manure on each side the rows of Peas, Beans, Cauliflowers, also about fruit trees and bushes. This application preserves the roots in a more equable condition as regards temperature and moisture than could be otherwise secured. The good results secured through the mulching of crops are more noticeable in light soils than in heavy ground during a dry hot season. Indeed, without incessant watering or heavy mulching it is impossible to obtain satisfactory crops from light shallow soils in dry hot summers.—H. W. W.

— **WOODBIDGE HORTICULTURAL SOCIETY.**—The schedule of the Woodbridge Horticultural Show, which is to be held on July 7th, has been issued. Roses are well provided for, the principal class being that for twenty-four distinct varieties, in which a 25-guinea challenge cup and the silver medal of the N.R.S. are offered as first prize. There are sixteen other classes for Roses, but these form only a small portion of the schedule, which comprises no less than 171 classes in all, flowers, fruit, vegetables, field allotments, and small gardens being all catered for.

— **GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—The Committee of the Gardeners' Royal Benevolent Institution regret to announce that in consequence of the lamented death of Lady Goldsmid the fifty-third anniversary Festival Dinner, at which Sir Julian Goldsmid had kindly consented to preside on the 29th inst., is unavoidably postponed to a date which will be duly notified. Meanwhile the Committee earnestly trust that the many friends who have supported the Institution in the past will not relax their efforts, but rather increase them, on behalf of its funds, and thus endeavour to make this year's annual collection worthy of the cause for which it was promoted. A sum of nearly £700 is required on July 1st to meet the quarterly payments then due for pensions alone, and the Committee therefore sincerely hope that the Institution will not be allowed to suffer from any diminution in the amounts collected on account of the unforeseen and regrettable circumstances which have led to the postponement of the Festival for a short time. All amounts should be remitted to the Secretary, George J. Ingram, 50, Parliament Street, London, S.W., who will be pleased to send collecting cards to any who may desire them, and also to reply to any communications that may be addressed to him.

— A USEFUL FLOWER GATHERER.—One of the neatest forms of flower gatherer we have seen is that known as Dubois', a French contrivance. It is made to resemble a light walking-stick, is admirably finished, and the blade is protected by a stout metal sheath, so that it may be used as a cane. As a cutter it is excellent. It can be worked with great rapidity, and the stems are held securely when severed. If proper facilities for its manufacture under royalty were allowed by the French patentees there would be a considerable demand for the gatherer in this country. Messrs. Corry & Co., Limited, are introducing it, and it can be had through seedsmen.

— A CONFERENCE AT TUNBRIDGE WELLS.—We have received a letter from Mr. D. G. Cornwell, 19, Grove Hill Road, Tunbridge Wells, respecting the Conference of Gardeners' Associations to be held there on July 6th. There are not, he says, to be any cut-and-dried arrangements of resolutions settled beforehand, but free and open discussion on the best means of banding horticultural societies together for their mutual good. A luncheon will precede the Conference, and the latter will be followed by visits to places of interest to horticulturists in the locality. A dinner will be held at 6.30 P.M., and a smoking concert at 8 P.M. Mr. Cornwell will supply particulars when the programme has been finally settled.

— NEW PARKS IN LONDON.—Two new parks have been added to London's open spaces and recently opened. Avondale Park, so called in commemoration of the late Duke of Clarence and Avondale, is more of a play-ground than anything else, occupying very little over 4 acres. Nevertheless, as it is situated in one of the most crowded parts of Kensington it will serve a good purpose. The features of Brockwell Park, Herne Hill, in the south-east of London, which was opened by Lord Rosebery, have been previously referred to in the Journal. The County Council has not pursued a cutting-up and laying-out policy, but has wisely striven to preserve its many natural beauties. The park covers about 75 acres.

— ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society in the Drill Hall, James Street, Victoria Street, Westminster, will be held on Tuesday, June 21st, and promises to be of more than ordinary interest. In addition to the plants and flowers usually to be seen there will be competitions among amateur growers of Pæonies, Delphiniums, and Pinks. The National Rose Society will also hold its first Show of 1892 in connection with the R.H.S., and if previous years may be regarded as a criterion the display of Roses will be a fine one. At three o'clock Mr. W. T. Thiselton Dyer, C.M.G., Director of the Royal Gardens, Kew, has kindly consented to deliver a lecture on "The Management of Trees in Parks and Gardens."

— "THE KITCHEN GARDEN IN SUMMER" was the title of a most seasonable and practical paper read before the members of the Wakefield Paxton Society at their ordinary weekly meeting at the Saw Hotel last Saturday evening by Mr. T. Pitts, gardener to Mr. D. B. Kendell of Thornhill House, Walton. Mr. B. Whiteley presided, and Mr. J. G. Brown, of Hatfield Hall, was in the vice chair. Mr. Pitts' remarks were of great value both to gentlemen's gardeners and amateurs, for he gave them, without the slightest reserve, the benefit of his long and extensive acquaintance with kitchen garden work, and mentioned many of the best varieties of vegetables and the kinds which he had proved most adapted for growth in this district. Mr. Pitts strongly recommended a more general use of the Dutch hoe, and he also advocated the judicious use of soot and nitrate of soda and a liberal admixture of farmyard manure. A long discussion ensued on the paper.

— A BERLIN PARK.—The public park at Berlin, "Humboldtshain," is just now glorious in its spring dress. It is divided into so many zones for native and foreign plants. Each is provided with a tablet, giving its scientific and German name, its country, &c. In the Asiatic zone many examples of *Pinus floribunda* are now in full and beautiful flower. The views from the different paths, says the "Vossische Zeitung," become each year prettier. In the south border of the park is the school garden, provided with plants for the instruction of scholars; there is a nursery of nearly three million young plants; a vivarium, an alpine garden, and a "geological profile," as studies for both teachers and pupils. Then there are hothouses and glass boxes where the plants for the decoration of the public gardens in the city are cultivated. There is plenty of vegetable material for instruction in drawing in the industrial and other schools, and a botanical museum is located in the house of the director of this park. This interesting place easily reached from the centre of Berlin by means of the trams.

— AVENUE TREES.—It is so much the rule to plant in avenues, whether in town or country, only one kind of tree, that I have often felt almost angry with the lack of taste shown in such planting, for nothing can well be more monotonous than wearisome lines of the same sort of tree in all directions. Now I noticed the other day a new street or road at Teddington planted with Horse Chestnut, but alternately on either side with scarlet and white varieties. The planter evidently thought that with the famous Chestnut avenue of Bushey Park close by as an example there could be no such fine tree for the planting of streets as the Horse Chestnut, and that to introduce the scarlet variety would be a great success. What really is happening is that whilst the common variety grows grossly and does not bloom appreciably until the trees become large, the scarlet Chestnut is a slow grower and blooms profusely when but a few years old. When I saw all the scarlet flowered trees in bloom a week since the white flowered variety almost everywhere had done blooming, but these rich coloured ones were gloriously beautiful; indeed I have never seen the variety in better condition. The association of the two varieties is all the same a great mistake. In a newly made short street on Kingston Hill the novel plan of planting diverse flowering trees has been adopted, Hawthorns and Laburnums being intermixed with, whilst in bloom, very pleasing effect, and in such a comparatively open area no doubt the trees will thrive very well. All descriptions of flowering trees have bloomed gloriously this year, and especially in villa forecourts. I see no reason to doubt but that similar trees will thrive and bloom equally in the street margins. When I see huge growing Plane trees planted on either side of a 25 feet street I recognise what all must regard as a piece of inconsiderate folly. Either the trees must be kept very hard lopped later or the houses must submit to have their windows hidden and darkened by the excess of leafage.—A. D.

— A PLEASANT OUTING.—On Friday afternoon of last week the gardeners of Kingston-on-Thames and district, who recently promoted as a Committee a concert in that town on behalf of the Gardeners' Orphan Fund, on the invitation of Mr. E. Burrell, who acted as Chairman of the Committee, and with the sanction of H.R.H. the Duchess of Albany, paid a visit to Claremont. The party included several lady friends, numbering sixteen in all, and was conveyed in a large brake *viâ* Surbiton, Hook, and Claygate through very beautiful country to Claremont. Here being received by Mr. Burrell, they were first conducted through the various ranges of glass plant houses, vineries, Peach houses, Tomato and Melon ranges, &c.; also through the kitchen and adjoining flower gardens. In every department there was much to admire. The fruit crops in general were excellent, everything was in admirable condition, and the entire section reflected upon the gardener the highest credit. Returning to the gardener's house it was found that Mrs. Burrell had laid tea beneath the branches of a noble *Pterocarya caucasica*, the branches of which extend to the diameter of 80 feet, and which forms probably one of the noblest trees of its kind in the kingdom. Close by the beautiful *Salisburia adiantifolia* and the Virginian Laurel, *Laurus sassafras*, form handsome trees. Tea over, and the intense heat of the sun's rays moderated, the party was conducted across the park past the noble mansion to the beautiful pleasure grounds, the work of the famous Capability Brown. These were found to be of such great beauty as to call forth the most enthusiastic evidence of admiration even from old seasoned gardeners. The Rhododendrons were in luxuriant bloom, forming wondrous masses of colour, and the grounds having in them several very lofty elevations and all magnificently wooded, the glades, scenes, and pictures presented baffle description. Lovelier grounds can hardly be found anywhere. After partaking once again of Mr. Burrell's kind hospitality the party returned home greatly delighted with their outing and reception.—A. D.

— STRAWBERRY VICOMTESSE HÉRICART DE THURY.—I quite agree with and can corroborate the remarks of "E. M.," on page 395 of the Journal for May 26th, on this Strawberry, as with me it has been a favourite, both for pot culture and the open air, for the last fourteen or fifteen years. Having tried several varieties for forcing, and some with very unsatisfactory results, I procured runners of the Vicomtesse, and have never failed to secure a grand crop of well-coloured and fine-flavoured fruit. It has also another advantage; being of compact dwarf habit it can be grown (and I prefer to so grow it) in 5-inch pots. In not a few places the greatest amount of work has to be done in the least possible time, and where this is the case the time usually spent in layering the runners into thumb pots, or 60's, may be saved by allowing the runners to root in the rows, taking care in gathering the fruit not to tread on them; then, in August or September, the runners may be

taken up with a ball and potted into the 5-inch pots at once, put on the north side of a wall, kept moist for two or three weeks until the roots take to the soil, then fully exposed to the sun in frames without lights, where they may remain until they are wanted for forcing, putting lights on in bad weather. I have adopted this system for years, potting them in September with the best possible results. It is one of the most floriferous, and consequently prolific, Strawberries grown. No sooner does it ripen its fruit than it begins to show its flower spikes again; and by planting out in the ground a batch that have been forced I have had them a complete mass of bloom in September, taken them up, repotted into 7-inch pots, and thus had Strawberries up to Christmas.

repay any care necessary in their culture. They are easily propagated by cuttings of young wood taken off close to where they issue from the previous season's wood. These, if inserted in sandy soil, well watered, plunged in brisk bottom heat, and covered with a bellglass, will nearly all root. Another reliable plan is to cut shoots of half-ripened wood into lengths of two joints; these if treated the same as advised above will also root freely, but not so quickly as the softer shoots.

The secret in growing *Dipladenias* is to water them with great care. From the first attention should be paid to this matter, or failure is certain to result. During the season of growth it is wise to keep the plants on the dry side, but being careful never to



FIG. 78.—*DIPLADENIA ATRO-PURPUREA* VAR. *CLARKEI*.

Some years ago I got in a dozen good varieties, amongst them Sir Joseph Paxton, Sir Harry, James Veitch, and Duke of Edinburgh, planted them on a bank with a south-west aspect along with some of the Vicomtesse, and whilst every other variety failed to yield a satisfactory crop the Vicomtesse produced abundance of fruit. It does well here whether planted out of the pots after forcing or from runners. A good companion to it is a variety I got from Little & Ballantyne (sent out I believe by them), called John Ruskin, a prolific variety, sending its fruit boldly above the foliage, quite distinct in flower and fruit from the Vicomtesse.—J. SMITH, *Asket Hill, Leeds*.

DIPLADENIAS.

FOR purposes of general decoration these plants deserve to be grown on a much larger scale. We rarely find them well grown except by those who prepare plants for the exhibition tent. The flowers are so useful for table decoration that they would amply

allow them to suffer by an insufficient supply of water. During the winter or resting period they need very little water, only sufficient to keep the wood plump. From the first the plants should be assisted by bottom heat; a temperature of 85° will suit them admirably. The pots need not be plunged into the material that supplies the bottom heat, or into any plunging material that may be employed over hot-water pipes. It is better to stand them on the surface so that proper attention can be given to watering. When plunged there is the danger of the soil getting too wet, and the plants suffering seriously in consequence.

During the season of growth a night temperature of 70° should be maintained, while during the day the temperature may rise 10° or even 20° higher. The plants require a moist atmosphere, and may be syringed twice daily when the weather is bright and warm. The plants should be trained under the roof, and freely exposed to the sun. This is important if they are to flower freely, which they will not do if the wood is not firm and thoroughly ripened. The shoots of young plants should be allowed to extend as much as

possible, and trained to a string up the roof of the house. The stronger the first season's growth the greater, if well ripened, will be the progress of the plant afterwards. After these plants have finished lengthening out their growth cooler, drier, and more airy conditions should be maintained to ripen and harden the wood. During the ripening process the temperature may fall at night to 60°, in fact this is a safe temperature in which to keep them during the season of inactivity.

The second season it must be decided whether the plants are to be eventually trained on balloon shaped trellises, which are the best if required for exhibition purposes, or not. Young plants can be trained on suitable sized trellises, so as to induce them to break as evenly and freely as possible. The shoots that issue from the ripened wood should be trained to strings secured to the trellis and the roof until they show flower, when they can be taken down and the shoots trained evenly on the trellis. If needed for home decoration the ripened wood of the first year may be laid horizontally near the eave of the house and the growing shoots trained upright. This is the best way of growing them, because the wood is certain to ripen thoroughly, and a good supply of flowers result.

When needed for home purposes only we prefer to plant them out in a small border well drained; the latter point is important, whether grown in pots or planted out. The soil should consist of rich fibry loam and good peat in equal proportions with a liberal addition of coarse silver sand; a little charcoal may also with advantage be used. Care is needed not to overpot the plants in their early stages of growth; small shifts are desirable. *Dipladenias* are very liable to be attacked by mealy bug, and they must be kept free from this pest if they are to continue in health and vigour. If it exists in the house the plants must be frequently looked over and cleaned, never allowing the bug to become established upon them.—W. B.

[The engraving (fig. 78) represents the new *Dipladenia* exhibited by Messrs. F. Sander & Co. at the Royal Horticultural Society's meeting on June 7th. It is remarkably distinct in colour, being rich dark purplish maroon with an orange glow in the tube. The foliage is small. Judging from the specimen exhibited it is a free bloomer. A first-class certificate was awarded.]

RUXLEY LODGE, ESHER.

THIS interesting place, one of the residences of Lord Foley, is now and has for several years been under the management of Mr. J. Miller, who was formerly at Clumber, and other good places, and has therefore a high reputation as a gardener. The pleasure grounds at Ruxley Lodge are not very extensive; the house, indeed, is not large, but it stands on a high elevation, reached after a stiff climb up a long carriage road, which winds from the village of Claygate, that lies to the east of Esher. The carriage way is densely overhung with lofty trees, and forms a very delightful approach to the place. When I called at Ruxley Lodge recently I noticed that although the Daffodil flowers were pretty well over large quantities had been planted—not in single dots, but in strong natural clumps on the grassy slopes which border the carriage road near the house. It is most fortunate that rabbits do not like Daffodils, hence we can with entire safety plant these bulbs anywhere. The soil on the hill on which the house stands is very sandy, but the Daffodils thrive in it luxuriantly. The kitchen and fruit gardens, with the glass houses, lie somewhat lower, the soil, too, being in the hollow rather stiffer. Trees do well, whether they be standards in orchards, pyramids and bushes in the gardens, or trained trees on walls.

There are many glass houses devoted to plants and fruits, and in every direction fully utilised; thus in a large span house the side stages are occupied by plants of diverse kinds, and the centre with Strawberry plants in pots, standing on a span stage in one direction. Tomato plants, then some 2 feet in height, have been planted out in the soil bed on which the stages stand, and on either side, and as soon as the stages are done with these are removed, stout rods fixed into the soil on either side, and bent over at the top to form an archway or bower, over which the Tomato plants are trained, and where they fruit profusely all the summer. In the second compartment the Strawberry plants were still fruiting, but would soon be replaced by Tomatoes. This method of cultivation answers admirably. In the late autumn the space thus covered is occupied by Chrysanthemums, until again needed for Strawberries. Of Tomatoes the favourite sorts are Hackwood Park, Ham Green Favourite, and Excelsior. Of Strawberries Noble, President, Sir Joseph Paxton, British Queen, La Grosse Sucrée, and, very unusual indeed, the white Bicton Pine are grown. This latter variety is specially appreciated for its fine flavour. Melons are well done here, and as for Mushrooms they seem to be found in all directions, both indoors and out. There are about the place numerous stables, sheds, or outhouses not otherwise occupied, and these are laid under contribution to furnish large beds. There are outdoors some of the ridge-shaped beds, and there are other beds in ordinarily constructed Mushroom houses. The demand is great, and the supply seems to be not less so. Mr. Miller maintains a supply of spawn by keeping a quantity of horse droppings regularly impregnated, holding that this method is the most satisfactory.

Peaches and Nectarines are very abundant under glass. Apart from

the extensive gardens and glass houses close home there is across the park a large old-fashioned garden, presumably at one time connected with a monastery, where there are several long lean-to houses devoted to these fruits, all carrying very heavy crops of the most popular varieties. Grapes of all the ordinary sorts are also remarkably well done, and in great quantity. Plants of various forms fill several houses, and there is a small but interesting collection of Orchids also. The whole of the various groups of glass houses are heated by a couple of what are termed "Ruxley Lodge" boilers. These are of the character of the well-known Trentham boilers, but still somewhat differently constructed, are each 10 feet long, and 3 feet wide, with an improved arrangement to prevent all blocking-up behind the bridge, as all coke that falls over the bridge drops clear of the boiler into an underground flue quite independent of the smoke flues. One of these boilers has been hard at work for five years, the other a shorter period. They seem to be both capital boilers, and easily worked. One boiler does all ordinary work, heating upwards of 3500 of 4-inch piping, whilst during the severest weather the fires could be banked up so early as nine to ten in the evening with the greatest confidence, and they would be affording ample heat when work commenced next morning.

Vegetables are well grown, and when I looked through the gardens Sander's Late White Broccoli, heeled in, was a capital crop, so also were Little Pixie Cabbages and Winter Spinach. Peas were coming on in abundance. Amongst special objects of interest in the pleasure grounds is a remarkably tall, spiral, and handsome *Wellingtonia*, which has the most perfect columnar form of perhaps any such tree in the kingdom. It is 65 feet high. Beside it is a grand specimen Horse Chestnut, feathering to the ground over 70 feet in diameter. Box of the old Dutch clipped form is much liked here, and there is a series of beds edged with Box, the edging made to assume a turret form at the corners, which is very novel in appearance, and is very pretty when the beds are filled with various coloured bedding plants.—A. D.

EUPHORBIA JACQUINIÆFLORA.

THIS is one of the most beautiful and useful winter-flowering plants we have, its bright scarlet racemes presenting a good contrast in the winter and spring to the foliage of other plants and Ferns. It is useful for cutting purposes as well as for effect. A few long racemes of bloom mixed with *Asparagus plumosus* or Ferns in a vase have a telling effect. This plant should be grown in quantity, as it is most useful for table decoration, and easily grown after the cuttings are struck. By inserting cuttings now and in batches up to July, taken off the old plants with a heel, a good succession can be had. I have found the cuttings strike best if inserted in a mixture of silver sand and peat in pots, plunging the latter in cocoa-nut fibre in a propagating frame with a bottom heat of 80°, where the cuttings, if not kept too damp, readily take root. I have found it a good plan to always leave a little air on the frame to keep the atmosphere fresh. I have also struck cuttings inserted in tins 3 inches deep, filled wholly with silver sand, every cutting inserted having rooted; but the plants struck by this system require more care when potted. It is best to try different ways, as sometimes one succeeds and not the other.

After the cuttings have struck and commenced to grow they should be pinched, and afterwards placed in 4-inch pots, either singly or three plants in a pot, in a mixture of peat, loam, and silver sand, with a little charcoal added to keep the soil sweet. When required for large plants they should be potted into 5 and 6-inch, in the same mixture as before, and be grown in a temperature of 50° to 60°. Three plants in 5-inch pots, pinched twice during the season, make beautiful objects for the dinner table, as well as for vases. The old plants can either be shaken out of the soil and repotted, or, better still, be planted out at the back of a house, or in the front, and the growths trained thinly to wires on the roof. I have also used the old plants to hide the pipes under a plant stage, planting at intervals in front of the pipes, and training the growths to galvanised wire mesh, held in an upright position by iron rods, and fastened by copper wire to the stage. *Euphorbias* and *Begonia Knowsleyana* planted together, and thus trained, produce a good effect during the winter months, as well as hiding the pipes from view. Ferns should also be planted for cutting from.—JOHN CHINERY.

JOTTINGS ABOUT STONELEIGH ABBEY.

AFTER being caught in a downpour of chilling rain one is not generally in the right mood to thoroughly enjoy the beauties which surround the "stately homes of England," or to take more than a cursory glance at the various departments of such extensive gardens as those at Stoneleigh, which are so well managed by Mr. T. Beddard. In consequence, therefore, of the unfavourable weather which prevailed at the time of my visit I will be content for the present with penning a few lines about the splendid condition of the fruit trees there, which I saw a short time ago.

In one of the houses in which the fruit had arrived at the stoning stage Peaches and Nectarines were carrying a grand crop of fruits, which were distributed with wonderful regularity over the whole surface of the trees. All the fruit trees, both in the houses and on walls in the open air, were fine specimens of careful and accurate training. They were also in the majority of instances giving fine promise for an abundant crop. Peaches, Nectarines, and Apricots in the open air being covered with a triple thickness of fish netting have apparently escaped the late severe frosts without injury.

Azaleas, Deutzias, and some fine types of Amaryllis supplied a wealth of bloom in the conservatory. In the same structure a large plant of the rarely seen *Clianthus puniceus* trained to an arched trellis was producing numbers of its attractive pendulous flowers. Opening buds of Niphetos Roses borne on large planted out trees were quite a feature, and must prove of great service for cutting. I will not, however, now enter into the details of the many things of interest to be seen at Stoneleigh, as I hope on some genial summer day to accept the hearty invitation of Mr. Beddard and visit the gardens under his charge once more. I will then endeavour to convey to readers of the Journal a more comprehensive description of this ancient and imposing Warwickshire abbey. —H. D.

EXHIBITIONS OF ENGLISH TULIPS.

Royal National Tulip Society.

THE forty-third annual Exhibition of this Society was held at the Botanical Gardens, Manchester, on Wednesday, June 8th, and although several prominent growers were unable to exhibit owing to the lateness of the date, the men of Lancashire and Yorkshire brought a good display of well-grown, well-marked flowers together, and a satisfactory show was the result. Unfortunately, however, the day was intensely hot and sunny, and as the Tulips were shown in a glass-roofed structure quite unshaded, they spoiled quickly in the Orchid-house-like temperature. As a natural consequence one heard the old evergreen statement that the Tulip is a May flower, and the Show ought never to be held in June. It certainly seems hard that year after year such growers as the Rev. F. D. Horner, Messrs. Thurstan, Haynes, Lakin, and Barber should be unable to exhibit because of their blooms being past. Still, let it be remembered that the date of the Show is always fixed by the votes of the members, and no word can be said against the method, as a date which suits the majority must be the best for the success of the Show. Complete satisfaction cannot be given to all the growers in England by one show, and the only way out of the difficulty is to have two exhibitions, one about May 20th, somewhere in the Midlands, and the other early in June. Unfortunately, the Tulip Society is at present financially unable to support two shows, but the pecuniary difficulty would be only a small one, if the early growers would bestir themselves and put matters into shape instead of keeping to their tents and mourning over late shows.

There is not much that is new to say about the Tulips exhibited. New varieties come but slowly to the front, and many of the old sorts are still indispensable. The various seedlings of Mr. Dymock of Stockport have been valuable additions of late years, and many of them are now pretty generally cultivated. His feathered bybloemen King of the Universe, a bloom of which gained the prize for the best feathered Tulip in the whole Exhibition, is probably the finest feathered bybloemen ever produced. The Judges were Messrs. Oldham (Mottram), Woodhead (Staleybridge), Barratt (Stockport), and Morris (Middleton). The following is a list of the awards and the names of the winning flowers:—

RECTIFIED TULIPS.

Class 1, for twelve dissimilar Tulips, two feathered and two flamed in each class.—First, Mr. James W. Bentley, Stakehill, with a stand of good sized well-marked flowers, comprising Sir Joseph Paxton and Dr. Hardy, flamed bizzarres; Sir Joseph Paxton and John Mills, feathered bizzarres; Violet Aimable and King of the Universe, feathered bybloemens; and Talisman and Perfection, flamed bybloemens; Mabel and Alice, feathered roses; and Aglaia and Annie McGregor, flamed roses. Second, Mr. James Knowles, with well marked flowers, but rather small. His varieties were Sir J. Paxton and Prince of Wales, flamed bizzarres; Robt. Guest, very good, and Sir J. Paxton, feathered bizzarres; Adonis and Talisman, flamed bybloemens; Mrs. Hepworth, very fine, and Adonis, feathered bybloemens; Queen of England, good, and Lady C. Gordon, flamed roses; Julia Farnese and Modesty, feathered roses. Third, S. Barlow, Esq., Stakehill, with flamed bizzarres Sir Joseph Paxton and Hardy's Seedling, feathered bizzarres Garibaldi (very fine) and Sir J. Paxton, flamed bybloemens Bob Morley (very pure and good) and Friar Tuck, feathered bybloemens Pegge's Seedling and Violet Aimable, flamed roses Annie McGregor and Aglaia, feathered roses Rachel and Heroine. Fourth, Mr. A. Moorhouse, Wakefield. Fifth, Mr. W. Kitchen, Stockport.

Class 2.—Six dissimilar Tulips, one feathered and one flamed in each class. First Mr. J. W. Bentley with flamed bizarre Sir J. Paxton, feathered bizarre William Wilson, flamed bybloemen Talisman, feathered bybloemen King of the Universe, flamed rose Annie M'Gregor, and feathered rose Heroine. Second, Mr. J. Knowles, with flamed bizarre Dr. Hardy, feathered bizarre Lord F. Cavendish, flamed bybloemen Adonis, feathered bybloemen Mrs. Hepworth, flamed rose Triomphe Royale, and feathered rose Modesty. Third, Mr. J. Jones, Denton, with flamed bizarre Dr. Hardy, feathered bizarre Sir J. Paxton, flamed bybloemen Lord Denman, feathered bybloemen Bertha, flamed rose Triomphe Royale, and feathered rose Lizzie. Fourth, Mr. C. W. Needham, Royton; fifth, Mr. A. Moorhouse; sixth, Mr. S. Barlow; seventh, Mr. G. Gill, Wakefield; eighth, Mr. W. Kitchen.

Class 3.—Six dissimilar Tulips, one feathered and one flamed in each class. For 10s. 6d., subscribers only. First, Mr. W. Mellor, Wakefield, with flamed bizarre Sir Jos. Paxton, feathered bizarre Lord Lilford, flamed bybloemen Lord Denman, feathered bybloemen Connorsby Castle, flamed rose Queen of England (very good), and feathered rose Alice. Second, Mr. S. Johnson, Stafford, with flamed bizarre Dr. Hardy,

feathered bizarre Lord Lilford, flamed bybloemen Lord Denman, feathered bybloemen Angelina, flamed rose Maggie, and feathered rose Mrs. Collier. Third, Mr. H. Keeling, Stoke. Fourth, Mr. T. Fitton, Stakehill.

Class 4, for three feathered Tulips, one in each class.—First, Mr. J. Knowles, with bizarre Sir J. Paxton, bybloemen King of the Universe, and rose Lizzie. Second, Mr. J. W. Bentley, with bizarre Garibaldi, bybloemen Agnes, rose Mrs. Collier. Third, Mr. J. Jones, with bizarre Sir J. Paxton, bybloemen Bertha, and rose Unknown. Fourth, Mr. G. Gill. Fifth, Mr. Keeling. Sixth, Mr. Johnson. Class 5, for three flamed Tulips, one in each class.—First, Mr. J. W. Bentley, with bizarre Sir J. Paxton, bybloemen Talisman, rose Mabel. Second, Mr. C. W. Needham, with Sir J. Paxton bizarre, Duchess of Sutherland bybloemen, Aglaia rose. Third, Mr. W. Kitchen, with bizarre Sir Joseph Paxton, bybloemen Bienfait, rose Clio. Fourth, Mr. S. Barlow. Fifth, Mr. Keeling. Sixth, Mr. Knowles. Class 6, two Tulips, one feathered and one flamed, of any class, for maiden growers only.—First, Mr. W. Mellor, with flamed bizarre Sir J. Paxton and feathered bybloemen Mrs. Hepworth. Second, Mr. Keeling, with flamed bizarre Sir J. Paxton and feathered bizarre Magnum Bonum. Third, Mr. J. Jones, with feathered bizarre Lord Lilford and flamed rose Annie McGregor.

Class 7, two Tulips, one feathered and one flamed of any class.—First, Mr. W. Mellor, with flamed bizarre Sir J. Paxton and feathered bybloemen Mrs. Hepworth. Second, Mr. J. W. Bentley, with flamed bizarre Sir J. Paxton, and feathered bizarre John Mills. Third, Mr. J. Knowles, with flamed rose Lady C. Gordon and feathered rose Heroine. Fourth, Mr. Moorhouse. Fifth, Mr. Needham. Sixth, Mr. G. Gill. Class 8, single blooms, feathered bizzarres.—First, Mr. Barlow, with W. Wilson. Second, Mr. Knowles, with Masterpiece. Third, Mr. Knowles, with Charles X. Fourth, Mr. Barlow, with General Grant. Fifth, Mr. Moorhouse, with Richard Yates. Sixth, Mr. Knowles, with Storer's Seedling. Seventh, Mr. Bentley, with Sir J. Paxton. Eighth, Mr. Barlow, with an unnamed variety. Ninth, Mr. Barlow, with Sir S. Romiley. Tenth, Mr. Barlow, with Garibaldi. Feathered roses.—First, Mr. Knowles, with Modesty. Second, Mr. Bentley, with Julia Farnese. Third, Mr. Knowles, with Modesty. Fourth, Mr. Barlow, with Heroine. Fifth, Mr. Bentley, with Annie McGregor. Sixth, Mr. Moorhouse, with Industry. Seventh, Mr. Needham, with Heroine. Eighth, Mr. Kitchen, with Aglaia. Ninth, Mr. Moorhouse, with Andromeda. Tenth, Mr. Prescott, with Industry. Feathered bybloemens.—First and seventh, Mr. Knowles, with Mrs. Hepworth. Second, Mr. Dymock, Stockport, with King of the Universe. Third, Mr. Knowles, with Mrs. Hepworth. Fourth, Mr. Bentley, with Adonis. Fifth, Mr. Bentley, with Atlas. Sixth, Mr. Barlow, with W. Parkinson. Eighth, Mr. Kitchen, with Violet Aimable. Ninth, Mr. Moorhouse, with Queen of the May. Tenth, Mr. Bentley, with Martin's 117.

Flamed Bizzarres.—First, Mr. J. H. Wood, Royton, with Sir J. Paxton. Second, Mr. Needham, with Dr. Hardy. Third, Mr. Barlow, with Prince of Wales. Fourth, Mr. Bentley, with Dr. Hutchens. Fifth, Mr. Barlow, with Sir J. Paxton. Sixth, Mr. Moorhouse, with an unnamed variety. Seventh, Mr. Moorhouse, with Sulphur. Eighth, Mr. Wood, with Masterpiece. Ninth, Mr. Needham, with W. Wilson. Tenth, Mr. Dymock, with an unnamed variety. Flamed Roses.—First, Mr. Barlow, with Aglaia. Second, Mr. Kitchen, with Aglaia. Third, Mr. Kitchen, with Clio. Fourth, Mr. Barlow, with Annie M'Gregor. Fifth, Mr. Bentley, with Mde. St. Arnaud. Sixth, Mr. Moorhouse, with Mabel. Seventh, Mr. Kitchen, with Rose Celestial. Eighth, Mr. Dymock, with Mabel. Ninth, Mr. Kitchen, with Mabel. Tenth, Mr. Dymock, with Triomphe Royale. Flamed Bybloemens.—First, Mr. Needham, with Lord Denman. Second, Mr. Moorhouse, with Talisman. Third, Mr. Bentley, with Dymock's Seedling. Fourth, Mr. Knowles, with Queen of the Universe. Fifth, Mr. Knowles, with Adonis. Sixth, Mr. Mellor, with May Queen. Seventh, Mr. Moorhouse, with Talisman. Eighth, Mr. Barlow, with Maid of the Mill. Ninth, Mr. Barlow, with Bessie. Tenth, Mr. Needham, with Lord Denman. Class 9.—The best feathered Tulip in the whole Exhibition. This prize was awarded to Mr. Bentley for the feathered bybloemen King of the Universe, shown in his stand of twelve. Mr. Bentley also secured the prize for the best flamed Tulip, which was awarded to him for the flamed bizarre Dr. Hardy, shown in the same stand.

BREEDER TULIPS.

Class 10.—Six dissimilar Tulips, two of each class. First, Mr. J. W. Bentley with bizzarres Sir J. Paxton and Sulphur, bybloemens Glory of Stakehill and Talisman, roses Miss B. Coutts and Annie M'Gregor. Second, Mr. Barlow with bizzarres Sir J. Paxton and Lord Delamere, bybloemens Adonis and Hepworth's Seedling, roses Annie M'Gregor and Miss B. Coutts. Third, Mr. Moorhouse with bizzarres Dr. Hardy and Sir J. Paxton, bybloemens May Queen and Bridesmaid, roses Mabel and Annie M'Gregor. Fourth, Mr. C. W. Needham. Fifth, Mr. Knowles. Class 11.—Three dissimilar Tulips, one of each class. First, Mr. Bentley with bizarre Sir J. Paxton, bybloemen Wm. Parkinson, and rose A. M'Gregor. Second, Mr. Mellor with bizarre Sir J. Paxton, bybloemen Queen of the May, and rose Thos. Parker. Third, Mr. Barlow with bizarre Sir J. Paxton, rose Miss B. Coutts, and bybloemen Adonis. Fourth, Mr. Knowles. Fifth, Mr. Kitchen. Sixth, Mr. Moorhouse. Seventh, Mr. Needham. Eighth, Mr. Gill.

Class 12, single blooms, bizzarres, breeders.—First, Mr. Bentley, with R. Yates; second, Mr. Mellor, with Sir Joseph Paxton; third, Mr. Needham, with Hardy's Seedling; fourth, Mr. Barlow, with Hepworth's Seedling; fifth, Mr. Bentley, with W. Wilson; sixth, with Goldfinder; seventh, with Sulphur; and eighth, with R. Yates. Rose breeders.—First, Mr. Bentley, with Olivia; second, Mr. Knowles, with Mrs.

Barlow; third, Mr. Moorhouse, with Annie McGregor; fourth, Mr. Bentley, with Mabel; fifth, Mr. Knowles, with Queen of England; sixth, Mr. Mellor, with Thos. Parker; seventh and eighth, Mr. Moorhouse, with unnamed varieties. Bybloemen breeders.—First, Mr. Jones, with Lord Denman; second, Mr. Gill, with seedling; third, Mr. W. Mellor, with Bridesmaid; fourth, Mr. Barlow, with Martin's 117; fifth, Mr. Bentley, with Adonis; sixth, Mr. Barlow, with Nimbus; seventh, Mr. Mellor, with Duchess of Sutherland; eighth, Mr. Mellor, with seedling. Class 13.—For the best breeder in the Exhibition, Mr. Bentley won with his R. Yates, bizarre breeder, which won the first prize in class 12.

Butley Tulip Society.

THE sixty-seventh annual Exhibition of this Society was held in a building attached to the Orange Tree Inn, Butley, near Macclesfield, on Friday, June 10th. The Show was satisfactory in many respects, but owing to the intense heat experienced for about a week before the date of the Show, many of the growers were unable, through their blooms being almost over, to show their true strength, and the great competition, which is for a fine silver cup, presented by the President of the Society, S. Barlow, Esq., J.P., C.A., of Stakehill, was thereby robbed of much of its interest.

For the silver cup, six dissimilar Tulips, one feathered and one flamed in each class, had to be staged, and although five or six stands were exhibited, the real fight was between Mr. J. W. Bentley of Stakehill and Mr. J. Knowles of Staleybridge, both of whom had been very successful at the National Society's Exhibition on the Wednesday before. The verdict of the Judges went in favour of Mr. Bentley, who showed a stand of well-grown flowers mostly high-class in quality. His flowers were flamed bizarre Sir J. Paxton, feathered bizarre Richard Yates, flamed bybloemen Queen of the May, feathered bybloemen King of the Universe, feathered rose Alice, and flamed rose Annie McGregor. Mr. Knowles' stand, which was exquisite in quality although the flowers were too small in size, comprised flamed bizarre Dr. Hardy, feathered bizarre Lord Lilford, flamed bybloemen Beauty of Litchurch, feathered bybloemen May Queen, flamed rose Mrs. Telford, and feathered rose Lizzie, and was placed second.

In single blooms, feathered bizarres, Mr. Knowles was first with Lord Lilford, fourth with Sir Jos. Paxton, fifth with Lord Lilford, sixth with Typo, and ninth, with John Ratcliffe; Mr. Kitchen of Stockport, was second with Sulphur; Mr. Bentley third with Lord F. Cavendish, seventh with John Mills, eighth with Unknown, and tenth with Sir S. Romiley. Feathered bybloemens, Mr. Kitchen was first with Violet Aimable, and fifth with Lord Denman; Mr. Knowles was second with Mrs. Hepworth, fourth with Violet Aimable, and eighth with Conningsby Castle; Mr. Bentley was third with William Bentley, sixth with Queen of the May, seventh with King of the Universe, and ninth with Habit de Noir; Mr. Barlow was tenth with Wm. Parkinson. Feathered Roses.—Mr. Knowles was first and second with Lizzie, fourth with Heroine, and fifth with Annie McGregor; Mr. Bentley was third with Mabel, sixth with Julia Farnese, and ninth with Lady Wilton; Mr. Barlow was seventh with Industry, eighth with Madame St. Arnaud, and tenth with a seedling. Flamed bizarres.—Mr. Knowles was first with Sir Jos. Paxton, and fourth with Dr. Hardy; Mr. Bentley was second with Sir Jos. Paxton; Mr. Dymock was third with Typo, and tenth with Duke of Sutherland; Mr. Barlow was fifth with Sulphur; Mr. J. Hague, Stockport, was sixth with an unnamed variety; Mr. Needham, Royton, was seventh with W. Wilson, eighth with R. Yates, and ninth with an unnamed variety. Flamed bybloemens.—Mr. Bentley was first with Queen of the May, second with Adonis, fifth with Unknown, ninth with Maid of Orleans, and tenth with Miss Johnson; Mr. Knowles was third and sixth with Beauty of Litchurch, and seventh with Bacchus; Mr. Barlow was eighth with Hepworth's Seedling. Flamed Roses.—Mr. R. Chadwick, Butley, was first with Aglaia; Mr. Kitchen was second with Madame St. Arnaud; Mr. Bentley was third with Annie McGregor, sixth with Mabel, and eighth with Triomphe Royale; Mr. Needham was ninth with an unnamed variety, and tenth with Aglaia.

Breeders.—For stands of three breeders, one of each class, Mr. Bentley was first with bizarre Dr. Hardy, bybloemen, Queen of the May, and rose Rose Hill. Mr. Barlow was second with bizarre Dr. Hardy, bybloemen Martin's 117, and rose Annie McGregor. Mr. Needham was third with bizarre Hardy's Seedling, bybloemen Hepworth's Seedling, and rose Annie McGregor. Single blooms.—Bizarre breeders.—Mr. Bentley was first with Dr. Hardy, second with Sir Jos. Paxton, and third with Standard. Mr. Barlow was fourth with Lord Delamere, and fifth with Dr. Hardy. Bybloemen breeders.—Mr. Bentley was first with Hepworth's Seedling. Mr. Needham was second with Pegge's Seedling. Mr. J. Hague third with W. Bentley, and fifth with King of the Universe. Mr. Barlow was fourth with Nimbus. Rose breeders.—Mr. Bentley was first with Hepworth's 964, second with Lord Derby, and fifth with Annie McGregor. Mr. Barlow was third with Thos. Parker, and fourth with Miss B. Coutts. For white and yellow selfs Mr. Barlow was first with Cygnet and Buttercup.

The prize for the best flamed Tulip was awarded to Mr. Bentley for Sir J. Paxton in his stand of six. Mr. Kitchen won the prize for the best feathered flower with Violet Aimable.

In the afternoon the growers and friends dined together, and a most enjoyable time was spent in the hearty, old fashioned, florist fashion, approved of by our fathers and grandfathers, and far too rare, alas! among ourselves.

Wakefield Amateur Tulip Society.

THIS Society had a very successful Show at the Brunswick Hotel, Borough Market, on Monday, June 6th. The season has been very favourable for the production of good blooms, so that lovers of this unique and beautiful flower had set before them an array which would dazzle the eyes of an old beholder. The rectified blooms were especially grand, and there was a good contest for first prize, which fell to Mr. George Gill of Eastmoor. In the stands of three and six breeders, Mr. Moorhouse was an easy winner. A notable bloom of his pen was Bridesmaid, which also took the premier award in the bybloemen breeders. Amongst the bizarres the success of Lord F. Cavendish and Sir Joseph Paxton was well marked, they being found in nearly all the winning stands. The staging was neatly effected in the long room placed at the Society's disposal by the landlord, Mr. Jacques, and a fairly good number paid a visit to the Show. Mr. E. Schofield of Lower Wortley was judge, and gave every satisfaction. Mr. Brown of Hadfield Hall judged the Ferns. Appended is a complete list of winners, and the names of the blooms in the different classes.

Six rectified blooms, dissimilar.—First, Mr. George Gill, Eastmoor, with Sir J. Paxton, Lord F. Cavendish, Talisman, Majestic, Agnes Strickland, and Minerva. Second, Mr. Alfred Moorhouse, Westgate, Wakefield, with Sir J. Paxton, Lord F. Cavendish, Talisman, Evening Star, Mrs. Lea, and Madame St. Arnaud. Third, Mr. E. Lister, Borough Market, Wakefield, with Sir J. Paxton, Lord F. Cavendish, Grace Darling, Seedling, Modesty, and Aglaia. Fourth, Mr. W. Calvert, Potovens, near Wakefield, with Sir J. Paxton, Masterpiece, Sarah, Majestic, Mabel, and Industry. Fifth, Mr. W. Mellor, Kirkgate, Wakefield, with Sir Joseph Paxton, Lord F. Cavendish, Bessie, Hepworth's Seedling, Queen of England, and Industry. Sixth, Mr. Jesse Hardwick with Sir J. Paxton, John Brook, Lord Denman, Majestic, Mabel, and Aglaia. Seventh, Mr. A. Stott, Peterson Road, Wakefield, with Sir J. Paxton, Lord F. Cavendish, Lord Denman, Adonis, Mabel, and Industry. Eighth, Mr. A. Brown, Potovens, near Wakefield, with Duke of Hamilton, Sir J. Paxton, Lord Denman, Unknown, Triomphe Royale, and Unknown. Six breeders, dissimilar.—First, Mr. A. Moorhouse with Sir J. Paxton, Dr. Hardy, Bridesmaid, Queen of May, Seedling, and Miss Collin. Second, Mr. W. Calvert, with Criterion, Hardwick's Seedling, Maid of Orleans, Hepworth's Seedling, Miss Burdett Coutts, and Annie McGregor. Third, Mr. Geo. Gill, with James Goodair, Dr. Dalton, Hepworth's Seedling, Geo. Hardwick, Thomas Parker, and Miss Burdett Coutts. Fourth, Mr. W. Mellor, with Sir J. Paxton, Dr. Dalton, Bridesmaid, Thomas Parker, Duchess of Sutherland, and Annie McGregor. Fifth, Mr. E. Lister, with Sir J. Paxton, Sulphur, Hepworth's Seedling, and three seedlings. Sixth, Mr. J. Hardwick, with J. Brook, Hepworth's Seedling, Sylvester, Hepworth's Seedling, ditto, and Catherine. Three breeders, dissimilar.—First, Mr. A. Moorhouse, with Sir J. Paxton, Bridesmaid, and Mabel. Second, Mr. W. Mellor, with Sir J. Paxton, Maid of Orleans, and Mabel. Third, Mr. G. Gill, with Jas. Goodair, Hardwick's Seedling, and T. Parker. Fourth, Mr. W. Calvert, with Dr. Dalton, Hepworth's Seedling, and Annie McGregor. Fifth, Mr. E. Lister, with Sir J. Paxton and two seedlings. Sixth, Mr. A. Stott, with J. Goodair, Hardwick's Seedling, and Mabel. Seventh, Mr. J. Hardwick, with J. Brook, Hepworth's Seedling, ditto. Eighth, A. Brown, with J. Brook, Hepworth's Seedling, and Mabel.

Bybloemen Breeders.—First, Mr. A. Moorhouse, with Bridesmaid. Second, Mr. W. Calvert, with Van Amburgh. Third, Mr. Moorhouse, with Bridesmaid. Fourth, Mr. Calvert, with Hepworth's Seedling. Fifth, Mr. E. Lister, with a seedling. Sixth, Mr. Geo. Gill, with Hepworth's Seedling. Seventh, Mr. W. Mellor, with Talisman. Eighth, Mr. J. Hardwick, with Madame St. Arnaud. Rose Breeders.—First and second, Mr. Mellor, with Mabel. Third, Mr. Geo. Gill, with Industry. Fourth and fifth, Mr. W. Calvert, with Catherine. Sixth, Mr. E. Lister, with a seedling. Seventh and eighth, Mr. A. Moorhouse, with Hepworth's Seedling. Bizarre Breeders.—First and second, Mr. A. Moorhouse, with Sir J. Paxton and Dr. Hardy. Third Mr. A. Brown, with J. Brook. Fourth and fifth, Mr. W. Calvert, with Hepworth's Seedling. Sixth, Mr. Geo. Gill, with Sir J. Paxton. Seventh and eighth, Mr. W. Mellor, with J. Brook. Flamed Roses.—First and second, Mr. A. Moorhouse, with Mabel and Madame St. Arnaud. Third, Mr. A. Brown, with Aglaia. Fourth, Mr. A. Stott, with Aglaia. Fifth, Mr. G. Gill, with Mabel. Sixth, Mr. W. Calvert, with Aglaia. Seventh, Mr. W. Mellor, with Mabel. Eighth, Mr. J. Hardwick, with Mabel. Feathered Rose.—First, Mr. W. Mellor, with Lizzie. Second and sixth, Mr. Geo. Gill, with Minerva and Modesty. Third and fourth, Mr. A. Moorhouse, with Mrs. Lea and Modesty. Fifth, Mr. W. Calvert, with Industry. Seventh, Mr. J. Hardwick, with Hepworth's Seedling. Eighth, Mr. Lister, with Sarah.

Flamed Bybloemen.—First and fifth, Mr. W. Calvert with Sarah. Second and eighth, Mr. W. Mellor with Lord Denman. Third, Mr. George Gill with Queen of May. Fourth, Mr. E. Lister with Beauty of Brighouse. Sixth, Mr. J. Hardwick with Lord Denman. Seventh, Mr. A. Moorhouse with Talisman. Feathered Bybloemen.—First and sixth, Mr. W. Calvert with Queen of May and Majestic. Second and third, Mr. A. Moorhouse with Adonis and Reliance. Fourth and fifth, Mr. George Gill with Lady Denman and Majestic. Seventh, Mr. E. Lister with Grace Darling. Eighth, Mr. J. Hardwick with Queen of May. Flamed Bizarres.—First, Mr. A. Moorhouse; second, Mr. George Gill; third, Mr. Moorhouse; fourth, Mr. Mellor; fifth, Mr. George Gill; sixth, Mr. E. Lister; seventh and eighth, Mr. J. Hardwick, all with Sir Joseph Paxton. Feathered Bizarres.—First and third, Mr. A. Moorhouse with Masterpiece. Second and fifth, Mr. George Gill with

Sir Joseph Paxton and Hardwick. Fourth, Mr. W. Mellor with Lord Lilford. Sixth, Mr. E. Lister with Lord F. Cavendish. Seventh and eighth, Mr. W. Calvert with Criterion.

The premier feathered bloom was Mr. A. Moorhouse's Lord F. Cavendish; the premier flamed Mr. Moorhouse's Sir J. Paxton; and the premier breeder Mr. Moorhouse's Bridesmaid. Mr. Gill and Mr. Hardwick were successful with Ferns.

THE LEICESTER PANSY SOCIETY.

THE first annual Exhibition of this young and apparently vigorous Society was held in the Lecture Hall of the Leicester Liberal Club on Saturday, June 11th, and constituted a most pleasing and attractive Exhibition. Probably in no district in England are Pansies more widely and generally cultivated than in the numerous allotments and cottage gardens around Leicester, and the effect of this new Society will undoubtedly be to still further extend and improve the cultivation of the Pansy, which may justly be termed everybody's flower. Conspicuous in the centre of the room was a stand of magnificent flowers of new Fancy varieties, staged by Mr. Andrew Irvine, Kyles of Bute Nursery, Tighnabruich, N.B. Next following these was a stand of seventy-two flowers, most admirably and neatly set up, of the new Fancy Pansy Duchess of Portland, exhibited by the raiser, Mr. Wm. Sydenham, Tamworth. This is a most pleasing and attractive variety, with a large dark blotch on each petal and a pleasing lemon yellow belting. It is said by the raiser to be an excellent bedding variety.

In class 1, for twenty-four Fancy Pansies, dissimilar, Mr. W. Whitehead, Secretary of the Society, was first, and Mr. G. East, second, but the latter won with eighteen blooms. For twelve, Mr. H. Yeomans was first; Mr. Dingley, second; and Mr. John Bowles, third. Mr. Dingley won with six; Mr. H. Yeomans following; and they were also first and second with six of one variety; Mr. Revel being third. Mr. H. Yeomans won with three; Mr. T. West being second. For the special prize given by A. Irvine for twelve Fancy Pansies, dissimilar, Messrs. Biddles & Co., Loughborough, were first; Mr. G. East, second; and Mr. H. Yeomans, third. Mr. W. Sydenham won with twenty-four Fancy Pansies, dissimilar, open; Messrs. Biddles being second.

Collections of cut flowers grown outdoors were very well shown. First, Messrs. Biddles. Second, Mr. J. Bowles. Third, Mr. A. Weston. Messrs. Biddles' first prize collection consisted of twenty-five large bunches of the best hardy herbaceous flowers, admirably set up, conspicuous amongst them being *Aquilegia chrysantha*, *Lychnis viscaria* fl.-pl., *Thalictrum aquilegifolium*, *Phlox ovata*, *Hemerocallis flava*, and *Achillea Mongolia*. Mr. Burns, Superintendent, the Abbey Parks, Leicester, set up a fine bank of shrubs and cut flowers, comprising collections of *Pyrethrums*, *Aquilegias*, *Rhododendrons*, *Pæonies*, and *Clematis*. This bank was effectively and tastefully arranged with a background of shrubs and a fringe of *Saxifragas*. The cut flowers were arranged in bays, divided by groups of small *Dracenas* and other plants. Messrs. Ant. Roozen & Sons, Overveen, Haarlem, Holland, had a fine collection of cut flowers of *Ranunculus*, *Anemones*, *Pæonies*, *Irises*, and others, staged and exhibited by Mr. W. I. Iliffe, florist and seedsman, Market Street, Leicester. A considerable number of decorative plants were also lent by the President, Mr. W. K. Woodcock, Barkby Road, Syston.

A meeting was held at 2 P.M., there being a large attendance of ladies and gentlemen. The chair was taken by the Mayor of Leicester, Alderman T. Wright, supported by the President and Mr. and Mrs. T. Fielding Johnson. The Mayor introduced the Society and this, their first show, to those present and to the public in a very neat and appropriate speech, and called upon Mrs. T. Fielding Johnson to declare the Show open, which she did in a graceful manner, giving an admirable address upon the refining tendency of the love and cultivation of flowers, and of the claims which the Pansy in particular has upon all. The thanks of those present to the Mayor for presiding, and to Mrs. Johnson for her part in the work of the day, moved by the President, and seconded by Mr. T. F. Johnson, were most heartily accorded.

The work of judging was effectively carried out by the Rev. E. N. Pochin, Barkby Vicarage, and Mr. Foster, Leicester, assisted by Mr. A. Irvine, Tighnabruich, N.B., the veteran grower, Mr. W. Dean of Birmingham, also being present, and rendering much useful assistance. Too much praise cannot be given to the working Committee, and especially to the Treasurer, Mr. H. Jordan, and the Secretary, Mr. W. Whitehead, for the energetic and self-denying manner in which they have worked in order to render the Society and this its first Show a success. We are pleased to congratulate them upon the result.

vigour. Stable and cow-house drainings must be carefully used, as they contain little beyond urine, and require to be diluted with about six times the bulk of water. The contents of manure tanks are a still more variable compound. Sometimes the liquid is merely coloured with manurial matter, and at others is as dark as porter. The thing is not to apply it too strong. Where these stimulants cannot be had it is a good plan to use surface dressings of fresh turf and sprinkle some approved fertiliser over that occasionally. Planted-out trees will require water or liquid manure once or twice a week, according to the extent of the rooting area, and the roots should be mulched with rich material so as to keep an abundance of active feeders. Syringe the trees twice a day to keep red spider in check, directing the force of the water against the



FIG. 79.—WARCEWICZELLA LINDENI. (See page 449).

under side of the leaves, and letting the applications be thorough, as one good syringing is worth many sprinklings. Thin the fruit before it is the size of walnuts, and in thinning reserve the largest fruit at the base of the shoots. Trees that are to be forced early another season should not be allowed to carry a heavy second crop, and none near the points of the shoots, or they will not be able to produce a full first crop of Figs another year, which is of the greatest consequence.

Succession Houses.—Houses started during the first two months of the year have the fruit ripening and require a free circulation of warm, rather dry air. Leave a little on constantly so as to prevent moisture condensing on the fruit, and increase it early so as to dispel any that would otherwise become deposited on the fruit through the sun heating the air more rapidly than the fruit, the cool surface of the latter condensing the moisture in the atmosphere expanded by the sun's warmth. Take care not to wet the fruit after it commences to ripen, and afford it all the light practicable. Tie in and regulate the shoots by stopping and thinning, keeping the growths fairly thin, and not pinching where there is room, as the finest fruits are borne on extensions, especially in the first crop, spurred growths giving good results in second crops. Do not allow any lack of water at the roots, yet give less supplies than when the fruits were swelling. If red spider should attack the trees the fruit should be closely gathered and a good syringing given, which will not injure the remaining fruit, provided it is done early on a fine day, so that the moisture does not long remain on the fruit.

Young Trees in Pots for Next Year's Early Forcing.—These must not be stopped much after this date, but have all the light practicable and be kept as near the glass as possible without touching it, so as to secure sturdy well-ripened growth, keeping this clean by syringing and the application of an approved insecticide when necessary. Afford liquid manure to insure stout, well nourished growth. When the growth is complete the trees may be stood outdoors to induce rest, but the wood must be well ripened previously, and to be of use for early forcing it must be matured early and never have its assimilated juices extracted by red spider or scale.

PINES.—**Potting Suckers.**—The early-fruited plants as they finish will afford suckers, which should be taken in sufficient quantity to meet



FRUIT FORCING.

FIGS.—**Early-forced Trees.**—After the first crops are gathered generous treatment should be accorded so as to enable the trees to swell the second. Trees in pots require water daily, sometimes twice a day, and some stimulant should be applied so as to keep them in healthful

the demand and be started at once. These will afford plants for fruiting about this time next year, and form a supplementary batch to those started in spring. They require a close, rather moist pit, and a bottom heat of 85° to 95°. Pay careful attention to shading and damp as required.

Spring-potted Suckers.—If the strongest of those potted last March are not in their fruiting pots they must not be kept longer in the small pots, as that stunts their growth and weakens them, so that they do not do well afterwards. When given their fruiting pots the plants should have a regular bottom heat of 85° to 95°, and be thoroughly well watered after potting, not giving any more until the soil becomes dry, always avoiding a too wet soil, as that is not favourable to the formation of roots.

Young Stock.—The succession plants are now making rapid progress, and must not be crowded, or that will result in attenuated growth and poor shows of fruit. Afford them ample space so as to secure a sturdy growth. Have the foliage dry before it is affected by the sun, ventilating early in the day at 75° to 80°. Watering should be attended to once a week, not giving any until it is found by examination to be needed, and then afford a thorough supply of tepid liquid manure, being careful not to apply it too strong. Syringe the plants on fine afternoons, and otherwise maintain a genial condition of the atmosphere by damping the house, but avoid a very moist atmosphere in dull weather, as it only tends to a soft growth, and that is seldom satisfactory when the weather becomes bright, often rendering shade imperative to prevent scorching. While water remains in the axils of the leaves syringing is not required, and in watering pour the water well up the plants, as they have roots in the axils of the leaves at the base, which assist their growth and make them sturdy.

Plants for Winter Fruiting.—If the strongest of the plants placed in their fruiting pots last September are not showing fruit means must be taken to effect it. Bring them together and subject them to a resting process for a period of four to six weeks, lowering the heat at the roots to 75°, ventilating at 75°, and closing at the same temperature, maintaining a free circulation of air about the plants in favourable weather, only employing artificial heat to prevent the temperature falling below 60° at night. Water should not be withheld, but do not give any until a plant becomes dry, and then afford a liberal supply. When the small suckers of last autumn that were wintered in 7 or 8-inch pots, and shifted this spring into the fruiting pots, have filled them with roots, they may be subjected to the same treatment as advised for the larger plants, and these will afford a successional supply of fruit.

Fruiting Plants.—Those with the crowns in close proximity to the glass will require a slight shade from powerful sun, otherwise they may become disfigured, and the fruit also is prejudiced by exposure to fierce sun. Cease syringing when the fruits commence to colour, supplying water to the roots as necessary, but avoid excessive supplies, as a wet state of the soil is apt to cause the fruit to become black in the centre. Ventilation improves the quality of the fruit, therefore admit air whenever circumstances permit, not allowing the temperature to fall below 80° in the daytime, and maintain it at 70° to 75° at night. Queen and Providence Pines started into fruit early in February will ripen this month, they coming in three weeks to a month in advance of Smooth-leaved Cayenne, Charlotte Rothschild, and similar varieties started at the same time and under similar conditions. They afford a good successional supply, which may be still further extended by removing some of the plants with the fruits to a cooler house. These fruits are much superior in freshness and using qualities to imported, the noble specimens that are the outcome of superior cultivation completely eclipsing those produced abroad. The Providence Pine has a fine effect in table decorations, and, though not equal to a Queen in quality, should be grown in limited number for its superior size and showy appearance. Fruiting Pines should have a bottom heat of 85° to 90°.

STRAWBERRIES IN POTS.—Perhaps the finest of all fruit is grown in pots in cool houses and pits or frames, where they receive little or no heat beyond that of the sun; the plants starting naturally, and coming on gradually, ripen fully a fortnight earlier than those in the open ground, and are vastly superior in size. There is much to be said in favour of the large fruited varieties, which, in such kinds as British Queen, Dr. Hogg, and Cockscorn are grown to great advantage under glass, as regards quality and perfection. Of the large kinds those are unquestionably far ahead of all Strawberries for quality, but there is no lack of flavour in such varieties as President, Sir Joseph Paxton, Marguerite, Auguste Nicaise, Sir Charles Napier, and Unser Fritz, which have using properties that appeal to different tastes. They are bright in colour, and are the best half dozen we have grown for succession in a cool house. Noble is also a grand fruit and very freely produced, but its colour is not pleasing, nor the shape equal to James Veitch. The latter is another large Strawberry not remarkable for quality, nor the briskness so much appreciated in such kinds as Sir Charles Napier, which is very taking in appearance. These late batches require abundant supplies of water and free ventilation, but they should not be stood on shelves where they will be exposed to a current of air blowing directly upon the foliage and fruit, for the first is then very subject to red spider, and the latter to become dried, browned in the skin, and prevented swelling. The air should be admitted below the plants, and moisture be prevented from being deposited on the fruit after it turns colour by a little air constantly, keeping it clear of the pot or soil by forked sticks, and withholding water from it, otherwise these large fruits are very liable to spot and decay.

THE FLOWER GARDEN.

Newly Planted Beds.—Constantly saturating these with cold spring water is not calculated to favour an early and strong growth of the

plants generally, added to which it greatly impoverishes the ground. After the plants have had two or three good waterings, or enough to keep the old balls of soil and roots moist till such time as the roots have struck out into the surrounding soil, lightly hoe over and level the surface, also applying, where possible, a mulch of cocoa-nut fibre, leaf soil, spent tan, or even fresh dry soil. If this treatment can follow a good soaking rain, not much more assistance from the watering pot will be wanted for some time. Failing rain give a good watering, preferably with pond or open tank water, prior to mulching. Many of the plants would, when first put out, be all the better for temporary shadings, a few branches of deciduous trees stuck among them, so as to shade those most needing it, doing a great deal of good. Light overhead waterings are beneficial after hot days; but this is very different to drenching the beds with cold water.

Tuberous Begonias.—About the second week in June is the safest time in many localities to plant these, and if they have been well prepared in boxes of rich soil they will move readily. A poor dry site will not suit them. What they require is a fairly rich, moisture-holding, root run, and they are especially partial to a mixture of half-decayed leaves and manure, or such as will have done duty previously as a hotbed. Place plenty of this within easy distance of the roots, and the Begonias will revel in it. Strong plants may well go out 12 inches apart each way, 9 inches being enough for small seedlings. For early effect carpet between the Begonias with *Mesembryanthemum cordifolium variegatum*, this also serving to keep the ground cool and moist underneath. If no carpeting plants are used a mulch of either cocoa-nut fibre, well-decayed manure, or leaf soil should be given early. A few plants of variegated Maize, seedling Cannas, and such like are very effective dotted among Begonias. Small seedlings of the latter should be kept in the boxes or pans in which they are pricked out, and in gentle heat for a fortnight longer, and be then hardened off and planted out 4 inches or rather more apart in a well-prepared border or bed. All will most probably flower in August or soon enough to show what they are like, and a capital lot of serviceable little tubers be available for storing.

Hot Corners.—There are many dry and hot corners and beds that are with the greatest difficulty kept gay during the summer. If there are any plants of dwarf Nasturtiums available, these will be found among the best that can be grown in such places; and Petunias, Marguerites, Golden Pyrethrum, Tagetes, Love-lies-bleeding, and Antirrhinums stand drought well. Such places are also the best for the strong-growing double-flowering Zonal Pelargoniums, and the latter family generally might be made to thrive and flower abundantly in dry beds if the latter were well prepared for them at the outset. Fork good solid manure freely into the surface, give a good soaking of water in the evening prior to planting next day, and keep the plants well supplied with water till well established, after which they will most probably do well.

Stocks and Wallflowers.—Now is a good time to sow seed of the red and white Brompton Stocks. Seeing that they do not come up particularly well in the open sow the seed thinly in boxes of good light soil, and keep in a cool frame or in an open spot where they will not be overlooked, shading and keeping uniformly moist till the seedlings are up. When about 2 inches high, and after being duly exposed to the full sunshine and air, prick out the seedlings in somewhat sheltered positions. Both double German and the ordinary Wallflowers make the finest plants when the seed is sown early in May, but there is yet time to raise useful plants. Select an open spot and fairly good ground, draw shallow drills 9 inches apart, and if these are at all dry give a gentle watering prior to sowing the seed thinly and evenly. Seedlings may be eventually thinned to 6 inches apart, the thinnings being pricked out, if need be, elsewhere.

Campanula Medium.—This section will shortly be in full flower, and promise to be very gay. If not already done stake each plant. After the first burst of flower very lightly shorten the branches so as to remove all the seed pods, and another good display will most probably result. Plants to flower next season ought now to be ready for pricking out into pans or boxes, and from these they should be early transferred to beds or borders. If planted in fairly good ground they ought to be disposed fully 12 inches apart, and will then make grand plants either for lifting or to flower where they are.

Polyanthuses and Primroses.—Seedlings of these ought now to be of good size or large enough for pricking out in the open spaces between fruit bushes, a little shade suiting them well. They pay for good culture, the strains distributed now-a-days being very superior. Old plants lifted from the flower beds, may, if wanted, be divided and replanted in a shady position, and again prepared for the flower beds, but these rarely equal strong seedlings for effect.

THE KITCHEN GARDEN.

CAULIFLOWERS.—These ought now to be plentiful, though the season has been rather against them, premature hearting being somewhat prevalent. Nothing can be done with those that "button" before they are well established, but comparatively small yet well-rooted plants can be made to produce serviceable heads by feeding at the roots. Give all the Cauliflowers that are commencing to heart liberal supplies of liquid manure (dribblets are thrown away on them), and they will amply repay for the trouble. In order to blanch the "curds" properly either tie the leaves well together over them or gather lower leaves, or some from plants that have been cut from, and fold these over them. Keep a close look-out for caterpillars, one or two of these quickly spoiling Cauliflowers. The principal crop of Autumn Giant ought to be well

established either between widely planted Potatoes or in a good open quarter, while if more are put out now a good succession will be provided. Plants obtained by sowing in the open early in May and planted in close succession to early Potatoes will frequently prove very serviceable late in the autumn. It scarcely pays to put out other varieties of Cauliflowers so late as this, though an exception may be made in favour of Eclipse, an early form of Autumn Giant.

CABBAGES.—A sprinkling of nitrate of soda or, better still, a good soaking of liquid manure or sewage water, the former being washed in by rains or the watering pot, will hasten the growth and improve the quality of Cabbage considerably. Liquid manure can be most readily and effectively applied if the rows of plants are rather heavily moulded up, the furrows between them being filled with the liquid. Do not cut over the hearted-in plants too severely, but rather leave several strong lower leaves, this favouring a strong break, and a good second crop of hearts. Spring-raised plants are the most numerous this season, and the second crop from these will or ought to be particularly good next autumn and winter. Now is a good time to sow seed of the small-growing Cabbages or Coleworts, of which there are none more serviceable than the London Rosette. Plants of these duly put out 12 inches apart each way will provide numerous good dishes early next winter. Chou de Burghley should be treated as late Cabbage, and not as Broccoli. When planted early and given much room the plants attain a great size, and the hearts are coarse and of little value. Supposing the seed to have been sown late in April or early in May the plants will now be ready for their final quarters. Let them have fairly good well-firmed ground, and if disposed not more than 15 inches or rather more apart each way coarseness will be guarded against, a supply of very good hearts being had for winter use.

POTATOES.—Only the earliest of these were cut down by frosts, and since good soaking rains have fallen the progress made has been most satisfactory. Even the latest planted ought now to be sufficiently advanced for hoeing between and moulding up, and this ought to be completed before the dry weather sets in. Late dressings of soot or special manures are sometimes of good service, but not if a dry time sets in soon after application. Apply it prior to hoeing between the rows, and if there is a good prospect of heavy rains falling delay the moulding up for a few days longer. If there is good space, or not much less than 3 feet, between the rows mould up the rows rather heavily, this to a certain extent acting as a preventive of disease. Now is a good time to commence experiments with the Bordeaux mixture with a view to disease prevention. Previous trials with sulphate of copper and quicklime have not proved altogether satisfactory, largely owing, it is thought, to the ease with which it is washed or dislodged from the foliage; but this can be remedied by the addition of molasses. What is now considered the most effective mixture consists of 5 lbs. of sulphate of copper, 5 lbs. of quicklime, 5 lbs. of molasses, and 25 gallons of water. In preparing this for use first dissolve the copper and lime separately in wooden vessels, and dilute the molasses with 3 gallons of water. All the water used to dissolve the different materials should be included in the total first recommended. Well mix all together and very lightly spray the haulm with it, taking care that the mixture is kept well stirred while in use. Two applications, one now and another three weeks hence, should be sufficient to ward off disease, and most probably in the case of early varieties one spraying will be all that is needed.

THINNING CROPS.—If good use has been made of the flat or Dutch hoe among advancing crops weeds will be scarce, and the progress of the different plants most satisfactory. Hand-weeding ought also to have been well attended to, leaving the weeds till they are strongly rooted being, to say the least, most unwise. Beet is not often sown excessively thick, but all the same the thinning-out must not be neglected. Leave the plants 8 inches apart, or thereabouts, and if there are any gaps in the rows dibble out a few of the thinnings more for the sake of appearance than for the value of the roots that may be obtained. Carrot seed was evidently not so good as usual, but if it was sown somewhat thickly there is yet much thinning out needed. Do this before the ground becomes hard, though the Horn varieties may be thinned out according as the young roots are wanted for use, eventually leaving them about 4 inches apart. The Nantes Horn and Guerande keep remarkably well, and ought not, therefore, to be cleared off wholesale. Thin out large-rooted varieties early, leaving them from 6 inches to 9 inches apart, the former distance being ample if the rows are 12 inches apart. Leave Chicory about 8 inches apart, and extra fine Carrot-like roots will then be obtained. Onions ought never to be sown thickly, and then there is no necessity to disturb and injure those that do come up. What thinning out is needed ought to be done early, leaving the plants about 4 inches asunder answering well when the rows are 10 inches and upwards apart, but more room, or another 3 inches, should be allowed if extra fine roots are desired. Hoe between the rows frequently, stirring in a dressing of soot during showery weather, this acting as a good fertiliser and a deterrent of maggot. Salsafy and Scorzonera do not require so much space as they often receive. Good roots can be had by thinning to a distance of 8 inches apart. Lightly thin out the early short-topped Turnips, but Snowball should be thinned more freely, these being left about 9 inches apart.

SEEDS TO BE SOWN.—Peas of the Ne Plus Ultra type are the best for present sowing; Emperor of the Marrows, British Queen, Latest of All, and others with a strong constitution, also doing well late in the season. They ought to have a deep and rich root run, and never become

dry at the roots. Runner Beans should be sown for a late supply where those earlier raised are liable to fail before the season is over. Sow Lettuce where the plants are to remain; these also require good well-manured ground. Cool borders are the best sites for Turnips just now, and also for Spinach, the Victoria being the best variety for present sowing.

THE BEE-KEEPER.

THE WEATHER.

AFTER one week's fair weather the temperature rose in the shade to 85° on the 9th, but on the following day it fell to 50°, the evening temperatures being equal. The temperature of the 7th was 76°, and it was the best day of the season for the bees. The 9th was too fiery, and they in a great measure remained idle, forecasting the change of weather we have had.

PUNIC BEES.

From their susceptibility to changes of weather these bees remained almost inactive during the inclement weather. One Punic stock nearly ready to swarm destroyed its drones in about half an hour without the slightest warning. In some respects this is a good point, but where we wish the drones preserved it is a bad one. The hives are all crowded, and honey-yielding flowers in the fields will soon be profuse. Any day may bring a favourable change, when it will be a busy time for the apiarist having swarms, and supering. This will be performed on every hive, whether intended for swarming or not. Supering may be the means of delaying swarming, but will not prevent it.

THE LANARKSHIRE HIVE.

Having been indisposed for some time I am in arrears with correspondence, and take the advantage of answering several queries through the Journal. In answer to "E. S. A.," two divisions of the Lanarkshire hive are sufficient for any swarm when the surplus is wanted in supers. The third division is allowed only in good seasons, or when two queens' progeny are allowed, be they in united swarms or brood combs; in fact, the apiarist must exercise his own judgment when the third division will be the most profitable, whether it be for extracting purposes or to give ample space for ready storage, and a prolific queen, but in no case supply bees with a third division minus built combs or comb foundation.

Not more than two of the blocks of wood between the top bars at each side should be removed, and it is better to remove one only, as it prevents the soiling of the super combs, and keeps the queen down, or rather the bees do not prepare the cells for brood, as they do when all the crown is open. The secret to prevent brood in supers is to give the queen ample space below. The close crown, too, conserves the heat of the brood nest.

Supers are placed directly over the top. Sections are placed in cases, one or more to cover the crown, and as many deep as the bees can occupy. I prefer two, as recently explained, and the top division along with the upper and deeper one serve as super protectors, which must be made to slip easily inside. Section cases have bearers a quarter of an inch thick nailed in the rebate bottom edge of the case.

The whole of my hives winter excellently in two divisions with the others in position, which hold 4 to 6 inches of dried grass as packing, the outside of the hive covered with two plies of sacking, soft felt, or house-flannel, which is again covered with an oilcloth. A curved sheet of iron protects the top and sends the drip right off the hive. The ventilating floor should be kept closed at all times unless during transit, or in exceptionally warm days during the daytime only. Never lower the temperature of the hive in the busy season more than is necessary. The floor gives a free circulation of air without a draught when closed, and as great a draught a little open as when removed.

SWARMING.

I prefer natural swarming. Artificial swarms, when swarmed deftly, are as good as any, and it is better to practise artificial swarming than lose bees. Use no swarming devices; they are not satisfactory, and they hinder the bees, and cause more trouble and unnecessary expense than paying a watcher or hiving artificially.

SEVERAL EGGS IN ONE CELL.

"R. M." wishes information on the above question; but without knowing the history of the queen I cannot explain. Fertile workers sometimes lay several eggs in one cell, as queens also do. The latter also lay their eggs in a uniform and compact manner. The former do not; they deposit them indiscriminately, anywhere in and on the cells. The queen in question may be one of this year's breeding, and more prolific than the consequent dwindled bees can care for; or she may be a confirmed drone breeder. I have had fertile queens completely fill many cells with eggs where there was a paucity of bees. This occurs only, however, when the queen had not long entered on her maternal duties, proving conclusively the absurdity of the statement that queens are most prolific at from three to five months old. I shall be glad to hear the former history of the queen and her future doings, as well as to see an improvement in "R. M.'s" description. Surely the queen did not lay her eggs in the "bars?" The bees will nurse one larva only.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Messrs. J. Laing & Sons, Forest Hill, London, S.E.—*Tuberous Begonias*; also *Hardy Perennials, Alpines, and Florists' Flowers*.



*All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Galls on Lime Trees (C. L. M.).—The small horn-like protuberances have been caused by a gall mite, a minute insect which punctures the leaves and deposits eggs in them, thus causing an elongation of the tissue, or nests, so to say, for the eggs and young progeny.

Tomato Leaves (D. B.).—Arriving as we are preparing for press, we can only say we do not perceive any fungoid infestation, though there is some injury to the tissue. We do not think it is the disease. We are obliged by your note, though it is too late for insertion.

Employment (A. C. C.).—We fear there are many gardeners, like yourself, out of situations, and who experience difficulty in finding employment. If you fail, as you suggest, in applications to nurserymen, we can only advise you to consult all the advertisement columns within your reach; also, if you think good, advertise your wants and experience, and at the same time ask all your friends to promptly advise you of any vacancies that may come to their knowledge. We regret our inability to name any particular places where gardeners would be likely to obtain employment.

Caterpillar on Pansy (J. G., Worcester).—The specimen forwarded is the caterpillar of *Selenia illunaria*, a pale brown moth, with the wings prettily dotted and angulated. It is presumed that the natural food of this caterpillar is the Willow, but it is often found in flower gardens, where it may occur upon a dozen or more different species of plants. There is, however, seldom any number of them to be seen, hence the species does comparatively little injury. The first annual brood of moths comes out early in April, these deposit eggs, producing the caterpillars to be found during May or June. These, having entered the chrysalis state in the earth, reappear as moths in July, and an autumn brood of caterpillars follows, which develop into the spring flights of moths, so many as escape the perils of winter.

A New Pyrus (O. T.).—As the matter you supply comes obviously and distinctly within the category of advertisements it can only be inserted on the usual terms, which may be obtained from the publisher.

Soil for Seeds (E. T. H.).—Exact proportions of loam, leaf soil, and sand cannot be given without knowing the nature of the loam. Obviously sandy loam does not need half the quantity of sand added that is requisite in strong or clayey loam, and similar remarks apply with reference to leaf soil. As a rule rather strong loam may have an equal quantity of sifted leaf soil added, and about a tenth part of sand, or more if the loam is sandless. Curiously you omit to name the kinds of seeds that failed. Assuming seeds are good much more depends on the depth they are covered and uniformity of moisture than on any particular proportions of soil ingredients.

Book on Market Gardening—Plants under Peach Trees—Market Roses (T. M.).—Perhaps you will find Shaw's "Market Gardening" useful. It is, we think, published by Mr. Murray, and the price can be obtained from a bookseller. You could grow Ferns under your Peach trees. *Adiantum cuneatum* pays well—that is, the fronds in a cut state. You do not say whether you want Tea or Hybrid Perpetual Roses. The following are good Tea and Noisette varieties:—*Maréchal Niel*, *William Allen Richardson*, *Niphetos*, *The Bride*, *Catherine Mermet*, *Souvenir d'un Ami*, *Rubens*, *Innocente Pirola*, *Madame Falcot*, *Madame Lambard*, *Safrano*, and *Isabella Sprunt*. The last two are very suitable for beds early in the season. Of Hybrid Perpetuals, *Général Jacqueminot* is the favourite, and finds a ready sale if the blooms are good. It is better to grow one or two good varieties than a number of no special value for the purpose.

Growing Cucumbers (Novice).—Information on every detail in Cucumber culture has been given from time to time in our "Work for the Week" columns. Turfy loam, inclining to be heavy rather than light, chopped up roughly, and about a sixth part of sweet decayed manure mixed with it (not rank manure) will form a good rooting medium. If you can add a shovelful or two of crushed lime rubbish and wood ashes to a large barrowful of the compost do so, but they are not essential. A temperature of 65° at night, rising to 90° in the day with sun, also plenty of moisture in the air and the soil, will promote rapid growth. A dry atmosphere favours insects, and dry soil arrests growth. Unless the male flowers are very numerous and the fruiting flowers sparse you need not trouble yourself about the former. Secure sound healthy growth, with the leaves fully exposed to the light, and good crops of Cucumbers will follow. You do not say whether you desire to grow them on trellises, in houses or pits, or trained over the soil in frames or the open ground.

Alnwick Seedling Grape not Setting (J. P.).—This extremely handsome and good late keeping Grape is one of the worst setting varieties, the stamens of the flowers being deflexed, therefore the pollen is not distributed on the stigmas when the caps are thrown off. The Vine is remarkably free in habit, and has a good constitution; but its flowers require to be carefully fertilised with the pollen of a free-setting variety, preferably *Alicante*, which has the property of always setting well, or that of any other variety may be used. It is easily effected, merely requiring to have the bunches brushed over carefully with a camel's-hair brush when the caps of the flowers come off freely, and having some pollen collected from a free-setting kind, as it may readily be by holding a sheet of white paper beneath the bunches and rapping them sharply when the pollen is ripe on the footstalks, so as to liberate it. It does the bunches from which it is taken no harm, but good, and the brush, loaded with the pollen and drawn over the Alnwick Seedling bunches, will mostly cause them to set every berry; but it must be observed that it can only impregnate such flowers as have the caps removed. Pursue this practice carefully, and you will be rewarded for your six years' waiting by grand produce, as the Vines will have abundant stamina.

Fig Growths Diseased—Preparing Fungicides (G. J. D.).—The leaves, points of the shoots, and young fruits are affected by a disease, which causes them to have the appearance of a severe infestation of red spider. There is no trace, however, of that pest, nor of any animal parasite. Indeed, the growths, except the affected parts, are perfectly clean and healthy, evincing good culture. But the diseased parts have become flat and flaccid, devoid of gloss, brown, leathery, and shrunken. The disease begins at the tips of the shoots, and descends from leaf to leaf until the whole become a dirty brown or black. The result is that all the vigour is gone, growth ceases for the season, and the vitality of the trees is greatly impaired. The affection is of fungoid origin, and highly contagious, healthy trees easily becoming infested in the same house with diseased, or when brought into contact with any of the diseased tissues. Its place and name has not been definitely fixed by scientists. As to remedies little can be done after the disease once becomes established in a growth, but it may be prevented spreading by the removal and burning of all parts that show any signs of the disease. As a preventive it is recommended to dress the trees liable to its attacks, whilst dormant, with simple solution of copper sulphate, 1 lb. to 10 gallons of water, and to give at least three early sprayings with Bordeaux mixture, the first when the foliage is half grown and thereafter at intervals of fifteen to twenty-one days. Care must be taken to prepare the Bordeaux mixture with freshly burned lime, to employ equal proportions of lime and sulphate of copper, and to not use it at a higher strength than 2 per cent.; that is, 2 lbs. of powdered sulphate of copper and 2 lbs. of lime to 10 gallons (100 lbs.) of water. As you may like to try it on the diseased growths now we give particulars of its preparation. Use clear water from a stream or pond. Place the

powdered sulphate of copper in a tub, add about 2 gallons of water, and stir until the water is blue. Pour this blue solution into an empty tub and 2 gallons more of water into the tub containing the copper, stirring as before, and repeat the process until all the copper is dissolved, about 6 gallons of water being necessary. All the copper being dissolved and poured into the second tub, place the freshly burned lime in the first tub, slake, and after that add enough water to make a rather thin whitewash. Pour the whitewash slowly through a coarse sack into the tub containing the copper solution. The straining removes all the small pieces of lime and dirt, which have a tendency to close the nozzle of the spraying machine. After pouring in all the whitewash add the remainder of the water, altogether making 10 gallons, and the solution thoroughly stirred is ready for use. Now test the Bordeaux mixture on a few growths, and if it does not blacken them in the course of a few hours, say a night, apply the mixture with a syringe or pump having a spraying nozzle, coating every part with a thin film only. If the foliage is injured dilute the mixture to a safe strength. It has been found that a 1 per cent. solution is more efficacious in many cases as a preventive than a 2½ per cent. mixture in arresting these diseases. So far as we have experienced winter treatment is extremely useful, and carbonate of copper in suspension is quite as effective as a preventive of fungoid attacks as ammoniacal solutions of copper carbonate or Bordeaux mixture, and far less likely to injure the foliage; but it is of little use as a remedy. If carbonate of copper in suspension be used 1 oz. of precipitated carbonate of copper should be well stirred in a small quantity of water, and the mixture thus formed be added to 12½ gallons of water, keeping it well agitated, as is done by the knapsack pump, whilst it is being applied.

Cucumber Fruit Disease (R. E.).—The disease, which affects the fruits first at the points and prevents their swelling, is a veritable scourge when once it is established, and by no means easy to extirpate. It was more common a few years ago than it seems to be now. We had many affected fruits sent to us in 1884, but few since. Mr. W. Taylor, when he was at Longleat, could only banish it by what may be termed "isolation"—i.e., raising plants in a house distant from that in which the disease was prevalent, and in the meantime cleansing and disinfecting the structure. Mr. A. Harding of Orton Hall Gardens has described his experience in stamping out the disease, and the best method of prevention, as follows:—"I can well pity anyone having to battle with this affection, and at the same time expected to keep up a supply of fruits. For two years, 1881 and 1882, we had it here. It made its appearance about June in the Cucumber house. Fresh seed and soil were obtained, and another house that had not had Cucumbers in it for at least five years was devoted to them; but no sooner had the small fruits appeared than they were attacked, and no good Cucumbers were cut. Some plants were also put out in new three-light frames and they also were attacked. Vegetable Marrows also shared the same fate towards August, the Custard Marrow in particular being worse than the Long White sort; but strange to say, a house full of Melons of three varieties next to the Cucumber house escaped altogether, not a trace of it was seen. Although fumigating and disinfecting with tobacco paper and sulphur was tried at the end of the season, the following summer it made its appearance again, but not in so virulent a form, and its not attacking the Marrows outdoors I attributed to a warmer summer than the previous one and less rain. I also employed more fire heat and damped the Cucumber house less of an afternoon with beneficial results; the extra 10° or so with less moisture seemed to arrest the disease. At the end of the season, however, I determined to give the house a more thorough disinfecting, and not have a Cucurbitaceous plant on the place if possible for the disease to exist on for at least four months, and I am glad to say that since that time (the last two seasons) I have not been troubled with it. When the Cucumbers were cleared out and burnt in October about 2 lbs. of sulphur with a handful of tobacco powder was placed on the red-hot pan of a fire shovel. It was then put in the house and allowed to burn itself out. The house was kept closed for two days, and all insects and plants, such as woodlice and small Ferns on the wall sides, were killed. After that about half a gallon of paraffin and plenty of softsoapy hot water was used in scrubbing the glass and woodwork, and when thoroughly dried the house was used till the following March for miscellaneous plants, such as Cyclamens, Pelargoniums, and Primulas, and since that time I am glad to say I have not been troubled with the disease. Increase of fire heat, with less atmospheric moisture, I believe is the best preventive for the Cucumber disease. Dryness at the root, however, must be avoided, or mildew and red spider will be encouraged." Commenting on Mr. Harding's remarks, Mr. Taylor wrote:—"Allow me to point out that the disease in Mr. Harding's case, and all others where it has been conquered, has been stamped out by leaving nothing for it to exist on. Any of your readers troubled with this pest who will banish all Cucurbits from their premises for four months, as he did, and start again with healthy stock, will without doubt get rid of the disease, and that is decidedly the best and cheapest way of doing it. This applies only to the gumming disease; of the root disease I have had no experience." We should cut and destroy all diseased fruits that can be spared, also infested shoots, and maintain a high temperature if the plants cannot be destroyed at present, and the stamping-out process indicated carried out forthwith.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes.

Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*G. M.*)—*Pyrus intermedia*. (*R. C.*)—1, *Lithospermum prostratum*; 2, *Veronica rupestris*; 3, *Helianthemum roseum*; 4, Not yet identified; 5, *Papaver orientale*; 6, *Papaver bracteatum*. (*J. M. T.*)—There was an overcharge of 2d. to pay on postage. Please remit stamps. Wednesday morning's questions can rarely be answered in the current issue. (*J. J. J.*)—Loosely packed in dry moss, the specimens were much shaken and withered. 1, Shrivelled, perhaps *Vinca alba*; 2, *Selaginella caesia*; 3, *Jasminum latifolium*; 4, *Philadelphus coronarius variegatus*; 5, *Clematis montana*; 6, *Crataegus Pyracantha*. (*B. B.*)—As you may see by the above conditions we do not undertake to name varieties, but only species of plants. Your *Rhododendron* is not a species, and its name can only be obtained by sending a truss to a nurseryman who grows these shrubs extensively. The variety you name is described in Messrs. Veitch & Sons' catalogue as cream coloured with chocolate spots.

COVENT GARDEN MARKET.—JUNE 15TH.

TRADE improving. A few samples of outdoor Strawberries to hand.

FRUIT.							
	s.	d.	s.		s.	d.	s.
Apples, Tasmanian, per case	6	0	to 8	Oranges, per 100	4	0	to 9
Grapes, New, per lb.	2	0	4	Peaches, per dozen	4	0	18
Lemons, case	10	0	15	St. Michael Pines, each	3	0	6
				Strawberries, per lb.	1	0	4

VEGETABLES.							
	s.	d.	s.		s.	d.	s.
Beans, Kidney, per lb.	0	9	to 1	Mustard and Cress, punnet	0	2	to 0
Beet, Red, dozen	1	0	0	Onions, bunch	0	3	to 9
Carrots, bunch	0	4	0	Parsley, dozen bunches	2	0	3
Cauliflowers, dozen	2	0	3	Parsnips, dozen	1	0	0
Celery, bundle	1	0	1	Potatoes, per cwt.	2	0	3
Coleworts, dozen bunches	2	0	4	Salsafy, bundle	1	0	1
Cucumbers, dozen	2	6	4	Scorzonera, bundle	1	6	0
Endive, dozen	1	3	1	Seakale, per basket	0	0	0
Herbs, bunch	0	3	0	Shallots, per lb.	0	3	0
Leeks, bunch	0	2	0	Spinach, bushel	3	0	3
Lettuce, dozen	0	0	1	Tomatoes, per lb.	0	6	0
Mushrooms, punnet	1	6	2	Turnips, bunch	0	0	0

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.							
	s.	d.	s.		s.	d.	s.
Arum Lilies, 12 blooms	2	0	to 4	Pæonies, dozen blooms	0	6	to 1
Bouvardias, bunch	0	6	1	Pansies, dozen bunches	1	0	2
Carnations, 12 blooms	0	6	2	Pelargoniums, 12 bunches	6	0	9
Carnations, Malmaison, 12 blooms	2	0	6	„ scarlet, 12 bunches	4	0	6
Cineraria, dozen bunches	6	0	9	Polyanthus, dozen bunches	1	0	2
Cornflower, dozen bunches	2	0	4	Poppies (various), dozen bunches	1	6	9
Eschscholtzia, doz. bunches	2	0	4	Primula (double) 12 sprays	0	6	0
Eucharis, dozen	2	6	5	Ranunculus, dozen bunches	3	0	6
Gardenias, per dozen	1	0	3	Roses (indoor), dozen	0	9	2
Lilium longiflorum 12 blooms	2	6	4	„ (outdoor), doz. bunch.	6	0	9
Lilium (various) dozen blooms	1	0	3	„ Red, per doz. blooms	2	0	4
Lily of Valley, doz. bunches	3	0	9	„ Tea, white, dozen	1	0	3
Maidenhair Fern, dozen bunches	4	0	8	„ Yellow, dozen	2	0	4
Marguerites, 12 bunches	2	0	4	Spiræa, dozen bunches	4	0	6
Mignonette, 12 bunches	2	0	4	Sweet Sultan, doz. bunches	4	0	6
Myosotis or Forget-me-not, dozen bunches	2	0	4	Tuberose, 12 blooms	0	6	1
Orchids, per dozen blooms	2	0	8	White Lilac (French) per bunch	4	0	5

PLANTS IN POTS.

	s.	d.	s.		s.	d.	s.
Arbor Vitæ (golden) dozen	6	0	to 12	Lobelia, per dozen	3	0	to 6
Arum Lilies, per dozen	6	0	9	Lycopodiums, per dozen	3	0	4
Azalea, per plant	2	0	3	Marguerite Daisy, dozen	6	0	12
Calceolarias, per dozen	4	0	8	Mignonette, per dozen	4	0	8
Cineraria, per dozen	4	0	8	Musk, per dozen	2	0	4
Cupressus, large plants, each	2	0	5	Myrtles, dozen	6	0	9
Dracæna terminalis, dozen	24	0	42	Palms, in var., each	1	0	15
„ viridis, dozen	12	0	24	„ (specimens)	21	0	63
Erica various, per dozen	12	0	24	Pelargoniums, scarlet, doz.	2	6	5
Euonymus, var., dozen	6	0	18	„ per dozen	9	0	18
Evergreens, in var., dozen	6	0	24	Rhodanthes, per dozen	6	0	8
Ferns, in variety, dozen	4	0	18	Saxifraga pyramidalis	1	6	2
„ (small) per hundred	8	0	12	Spiræa, per dozen	3	0	12
Ficus elastica, each	1	6	5	Trailing plants (various), per dozen	3	0	9
Foliage plants, var., each	2	0	10	Tropeolum or Nasturtiums per dozen	4	0	6
Fuchsia, per dozen	6	0	12				
Genista, per dozen	6	0	10				
Geraniums, Ivy	4	0	8				

Bedding Plants in variety in pots and in boxes.



PROSPECTIVE AGRICULTURE.

WITH a quiet trade in corn of all kinds, at low rates, with lambs selling at an average of 10s. per head less than last year, and store cattle ruinously cheap, corn farmers have indeed a

gloomy outlook. To sell at present prices is practically to live upon capital, and it is only from dire necessity that any such farm produce, with the exception of swine, is now offered for sale. Wheat has been held over for a rise on many a farm in vain, the average price now being lower than it was at any time last year; the returns for 1891 show that the value of Wheat and flour imported was £39,500,000.

This hard dry foreign Wheat is in high favour with bakers, because it absorbs so much water that they get ten more loaves per sack from it than from the flour of home-grown Wheat. This extraordinary absorption of water implies 10 per cent. less nutritive value in the bread, and the total loss to consumers has been estimated at £1,600,000 per annum. As this really goes into the bakers' pockets it has been termed a fraud, but we fail to see how a remedy is possible. On the contrary, it will act as an incentive to bakers to give more and more preference to flour made from imported "water-drinking Wheats," as they are aptly termed. This will tend to keep down the price of home-grown Wheat, and it should also lead to a further curtailment of the Wheat area here. Well will it be if it does so, and if greater attention is paid to home production of other things. There is ample scope, for the total value of the importations of breadstuffs, meats, butter, cheese, eggs, poultry, and vegetables in 1891 was £92,305,556. Of these things very much more of the last five might be had here without any great change in practice, and assuredly to the advantage of producer as well as of consumer. It is indeed a shame that really good British butter is a rarity among us. We admit that improvement in dairy work is going on, but it does so slowly, and in a fitful manner, very different to the national importance it assumed long ago in Denmark. Not till we have co-operative dairy factories established in considerable numbers shall we have good butter selling briskly at top market prices. The butter imported in 1891 reached a total value of £11,591,181, the average price per pound being above 1s.

We explained some months ago how to establish butter factories, and may now assure our readers that an attempt to compete with foreign dairies by means of our farmhouse dairies could only lead to failure. To succeed we must have dairy centres, where there are enough cows to afford a full supply of milk. Then, and not till then, will a better price for milk be possible. At the present time town retailers have milk forced upon them by farmers who appear to have no other available means to dispose of it. This naturally lowers the price. Complaints are frequent enough, yet the remedy really rests with the farmer. Only let factories be set going, and they will absorb so much milk that the price must rise.

Another thing to hope for is a higher standard of excellence in general farm practice. We want the land to be tilled better, and fed better. A glance at crops now they are in full growth shows clearly how faulty very much of the tillage is. The weak pale growth of very much corn and pasture tells its own tale of poverty of soil and imperfect drainage. The remedy is obvious. Not one acre more should be in the hands of any farmer than he can cultivate thoroughly; all beyond this is a burden to him and a loss to the country. If the size of holdings were ruled by such a standard prospective agriculture would be a much more hopeful matter than it now is.

Where fruit farming is taken in hand it should be upon the sensible safe lines of mixed plantations. We know such a plantation where the trees—standards—are approaching full size, and they should be in full bearing, but for three years the crop has been practically a failure, yet the undergrowth of Gooseberries, Currants, Raspberries, and Strawberries has each year yielded a fair crop, which has paid the rent, and afforded a good profit besides. The tenant of this farm is a thriving man, who works hard, and despises no available means for making both ends meet. A few acres of mixed fruits, a few good young breeding sows,

a well-bred herd of cows, some sound cart mares, each with its annual foal; excellent pasture, rich in fertility, as indeed all his land is; enough arable land to afford green crops, Potatoes, a moderate breadth of roots, enough corn and straw for home consumption, and a few acres of corn for sale too; some portable poultry houses, each with its full complement of carefully selected poultry—this is the sort of holding of which we hope eventually to see thousands of among us, in the hands of intelligent industrious men, who hold the plough themselves, both in the literal and figurative sense of the term. The habits and customs of the people change—new tastes, new wants come and grow. For example, the consumption of fruit and vegetables increases yearly, the dietary of the masses is more wholesome and more exacting than it ever has been, and farmers will do well to set themselves to supply it, and not suffer the alert foreign producer to meet every new requirement, or to wrest so much of their business from them as he has hitherto been allowed to do.

WORK ON THE HOME FARM.

Glorious weather followed the warm showers which "set all things in tune" at the beginning of the month. Growth has sprung up with marvellous rapidity, and the herbage of all rich pasture came so quickly into bloom that mowing for hay was begun sooner than at one time appeared possible. It is far better to mow early, even with a moderate crop so as to take full advantage of the bright weather, than to wait and run the serious risk of broken weather for the hayseal. The hay now being made in the second week of June will be of the best quality, and any July showers will be a boon indeed for the aftermath. This is in a southern county, but we have had evidence this year in the midlands, that the custom there of waiting till July before mowing is altogether unnecessary. A piece of new permanent pasture which we had laid down last year in Leicestershire was quite ready to mow by the 8th of June, most of the grasses showing the flower heads, and the crop being a fine one, affording a striking contrast to some old poor pasture near it.

The mowing of Clover, Trifolium, and mixed seeds is being pushed on, with an excellent prospect of some fine stacks of stover. Clover intended for seed has been folded by sheep, the second growth is starting well, and will be the better for some rain in the course of a week or two. This crop should be harvested before there is any risk of damage from autumnal showers, as the second growth is earlier than it would be if the first crop had been mown.

Mangolds are a full strong plant, and have been singled and hand-hoed. The horse hoe has been kept going briskly among them too; never has the land been cleaner both among corn and roots. The weather in May was very favourable for cleaning the land, and though we had a dripping time when June came in the weeds have been kept well under. Growth goes on so freely now that it will smother any other weeds which may spring up. Turnip fly is likely to prove troublesome among late sown Turnips, which should have plenty of nitrogenous food in the soil to induce free growth and enable the plant to grow quickly out of harm's way. One of the best mixtures for sowing broadcast over Turnips infested with insects consists of 10 cwt. of soot, 8 cwt. of nitrate of soda, and 1 cwt. of sulphate of ammonia, well mixed and applied at the rate of 1 cwt. per acre when the foliage is damp. Insects are then checked and growth much accelerated.

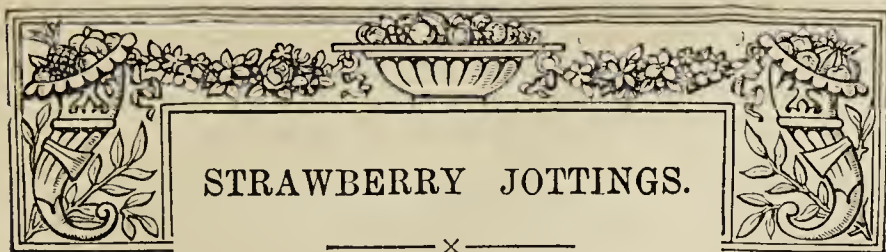
METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1892.	June.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday ..	5	29.761	58.3	54.9	W.	58.2	68.7	51.3	120.0	48.8	0.201
Monday ..	6	30.186	65.4	57.6	W.	57.9	75.9	47.9	128.8	41.1	—
Tuesday ..	7	30.403	57.3	54.3	E.	58.9	72.4	52.9	116.9	49.0	—
Wednesday	8	30.436	58.0	52.9	E.	59.1	75.0	48.1	117.1	42.7	—
Thursday ..	9	30.289	70.0	61.6	E.	60.1	79.3	53.4	123.6	48.1	—
Friday ..	10	29.983	71.9	64.1	S.E.	61.6	82.7	54.1	122.8	46.4	—
Saturday ..	11	29.805	63.2	56.3	S.W.	61.9	71.3	54.9	119.8	52.6	—
		30.123	63.4	57.4		59.7	75.0	51.8	121.3	46.7	0.201

REMARKS.

- 5th.—Many heavy showers, and once or twice a little hail, but occasional sunshine, especially in afternoon.
6th.—Brilliant day, cloudy at times in late afternoon and evening.
7th.—Overcast till about 10 A.M., sunny after.
8th.—Almost cloudless throughout.
9th.—Warm and sunny throughout.
10th.—Bright early, generally overcast from 10 to noon; sunny again in afternoon and early evening.
11th.—Overcast till 11 A.M., sunny at midday, and frequently cloudy in afternoon.
Another fine bright and generally warm week.—G. J. SYMONS.



THE bright sunny weather, accompanied by occasional warm showers, which characterised the first two weeks of the current month, did much towards forwarding the Strawberry crop in many parts of the country. As a rule June is well advanced ere ripe Strawberries are plentiful in the open air; but the present year is certainly an exception in this respect, notwithstanding the lateness of things in general. On June 10th ripe Strawberries were being sold in the streets of London at 6d. and 8d. a pound, and probably before these notes appear in print vendors will be satisfied with half the figures mentioned. Be that as it may, the fact we have here is that Strawberries generally were earlier than usual this year, and so far they appear to be exceedingly plentiful.

At the beginning of the season every grower naturally strives to get his earliest outdoor fruit ripe as soon as he possibly can. To accomplish this the private gardener not infrequently resorts to various practices, such as placing roughly made frames and lights over a few plants, or forming a bed on a warm south border. The latter is an excellent method, and where facilities are forthcoming should be adopted, it usually producing the most satisfactory results. With the market grower, however, things are entirely different. He, as a rule, grows his crop in large breadths, and consequently must rely upon the weather, which is sometimes in his favour, but as frequently against him.

What is the earliest Strawberry? This question is probably passing through the minds of many readers just at present. Some growers are confident that their own pet variety is the first to ripen, whilst others assert boldly that another kind is the harbinger of this delicious fruit. Broadly speaking, however, the question still remains unanswered. Much depends upon locality, soil, and natural surroundings. From observations I have made during the past decade I am convinced that whilst one particular variety will ripen first in a certain district, another will precede it in other localities. Young plants, too, produce earlier fruit than do old plantations. Still, it is only fair to say that since the introduction of Noble a few years ago this variety is by many considered the earliest, and for market purposes it is now very extensively grown. A Somersetshire correspondent writes me that he gathered his "first Nobles on June 9th this year from an outside border facing south-west, though not particularly sheltered." This is a recommendation that should not be overlooked even at the expense of quality.

This brings me to a most important point—flavour. Are Strawberries deteriorating in this respect? Size and colour we undoubtedly have in recently introduced varieties, and the additional merits of being either very early or late, but flavour! It is not in my province to pose as a connoisseur of Strawberries, but I do know when a variety is good or bad; and some I have tasted were very deficient in flavour. That soil and position affect the flavour of Strawberries to a considerable extent is, I think, well known, though gardeners do not study this matter so closely as they might do. For example, the variety Noble, when grown on rather heavy rich land, is as good in flavour as most kinds, but on poor ground it is sadly wanting. The same remarks apply to other varieties. At the same time, while recently introduced varieties are perfect as regards appearance, many of them are but poor in flavour compared with some of the old standard kinds.

Where, for instance, can we find a better flavoured Strawberry than the old, and sometimes much abused, British Queen? True, this is not everybody's variety, inasmuch as it is rather fastidious as to soil and position, but where it does well it should certainly be extensively grown. The finest plantation of this variety I have seen was in a clergyman's garden many years ago in Hampshire; where, in a warm sheltered position, and on a light loamy soil, the fruit coloured beautifully and developed its characteristic flavour to perfection. Dr. Hogg, which might be described as a robust British Queen, also did remarkably well in the same garden, and rarely failed to produce a heavy crop of fine fruit. The prolific Vicomtesse Héricart de Thury still holds its own as regards flavour, and for general purposes is perhaps one of the best Strawberries in cultivation. In some gardens the grand old Keens' Seedling still retains a good position, as it should do, though from others it has been obliterated to make room for more recent introductions. Sir Joseph Paxton and President are two useful varieties of good flavour when grown in a sunny position, and the same may be said of The Countess, a variety that does not appear to be so generally well known as it might be. I do not mean to say that the foregoing varieties are the best that can be grown, inasmuch as I am fully conscious that there are others probably better adapted for various districts, but given a fair trial it is a difficult matter to beat them for flavour.

Every gardener knows what it is to have to provide Strawberries for preserving, and generally grows some special varieties for the purpose. Possibly Black Prince is as good as any for preserving, the fruit being of a rich colour and excellent flavour. Unfortunately, however, this variety will not thrive in every district. I have seen it tried again and again in a Northumberland garden, but always with the same result—failure. The plants became literally smothered with mildew before the fruit commenced to colour. As a consequence other varieties were grown in its place, one of the best being Grove End Scarlet. This is a grand Strawberry for preserving, but rarely seen in modern gardens. Vicomtesse Héricart de Thury is also worth growing for this purpose, and so is Keens' Seedling where it does well.

Writing about these old varieties reminds me of some grand beds of the Hautbois Strawberry that I saw at Howick Hall, Northumberland, a few years ago. This species, of which there are several forms, is totally different to the other Strawberries, the fruit having a peculiar, though not unpleasant, Black Currant-like flavour. The best variety of this species is undoubtedly Rivers' Royal Hautbois, this producing abundant crops of finer fruit than does the type. Those who require a novelty in the way of Strawberries should give this variety a trial, and they will not be disappointed at the result. Alpine Strawberries are also well and extensively grown by Mr. Inglis at Howick Hall, quality being considered before quantity.

One more jotting and I have done. Regarding the progeny of "barren" Strawberry plants a correspondent writes:—"I have solved a problem that had long bothered me, and which, judging from horticultural literature, both books and correspondence, seems to be a doubtful matter to many others. In the directions given for propagating Strawberries we are told to be sure and not take the runners from barren plants. Well, out of a lot of plants of Laxton's Noble, which I had direct from the raiser, most blossomed and bore fruit, but a few were what is called barren. These, however, sent out a large number of runners, both very early and very strong. The bed in which these were planted was similar in soil, manure, and position to that from which they came, and this season they are the finest plants I have. They were white with bloom, and are now loaded with the finest berries. I may add that after I had taken enough runners I removed the original "barren" plants from the bed and substituted others. They were not, however, thrown away, but were planted carefully in a row by themselves, where they are now bearing as well as any. I therefore shall

propagate in future from the barren plants, because the runners which they produce are both earlier and finer than those which come from plants that have to bear fruit. It is true that the experiment has been made with only this kind, but I am this season doing the same with other sorts." This is news to me, as doubtless it will be to other readers of the Journal. Perhaps Strawberry growers will record their experiences in this matter.—NOMAD.

CULTURE VERSUS NATURE.

(MR BURBIDGE'S PAPER, Continued from page 448)

GOOD culture hinges on many things, but especially on a good start from seed or other kinds of increase, or propagation. As a rule all hardy seeds—*i.e.*, the seeds of hardy ornamental plants—should be sown as soon as they ripen; but where artificial food, crops, &c., are required at particular times and seasons, it follows that seeds must be sown at different times—spring, summer, or autumn, as the case may be. Any particular strain of vegetable or flower seeds can only be kept true by isolation, so as to preclude inter-crossing, but novelties, on the other hand, are often gained by selection after hybridism or cross-fertilisation. As a rule both special selections or strains, and hybrids alike, die out unless they are specially cultivated and protected, and in this way garden hybrids are far less stable than are Nature's hybrids, many of which are comparatively permanent, and in some cases are dignified and disguised by specific names.

The Oxlip, or Polyanthus Primrose, is an instance of this fact. It is the result of inter-crossing between the Cowslip (*Primula veris*) and the Primrose (*P. acaulis*), and is itself called *P. elatior*. So again *Narcissus incomparabilis* got a specific name from Miller, which it still retains, although well known to be a hybrid between *N. poeticus* and the Daffodil (*N. pseudo-Narcissus*).

All so-called species of plants are now known to be mutable. In a state of Nature plants rest unchanged only when their surroundings are the same. On the other hand, in the forest or jungle "change or die" is often Nature's fiat, and conditions are rare in which some slow series of changes are not in progress before our eyes. In the garden sudden changes of external or internal conditions take place far more quickly, but are, as we have said garden variations are, far less well fitted for a casual existence; hence, if we ever come across a desolate garden that was once well stocked, we find that most hybrids and selected seedling plants will either have gone back or reverted to their parental stage, or they will have died away entirely.

Chemistry has helped us much as to the due knowledge of, and the true economy of, nitrogenous plant food or manures; but there is yet much to be done in the profitable application of chemical principles. Especially should the cultivator take note of the modern observations as to the storage or fixation of atmospheric nitrogen by bacteria that inhabit the root nodules of many leguminose plants, such as Peas, Lupins, Clover, &c., for we may some day grow our own nitrogen far cheaper than we can buy it from Colonel North or the vendor of manures.

The chemist tells us that his manures are better than farmyard manure, of which 80 per cent. consists of water, but he neglects to note the physical action of fresh farmyard manure on the soil, and the real truth here, as often elsewhere, no doubt lies between the two extremes, farmyard manure being the best bulky basis to be enriched with pure chemical manures for special crops. Thus for Grape Vines, or Potatoes, or leguminose plants, the dominant fertiliser added should be potash; for Wheat, Beet, &c., nitrates are best, and superphosphates for Turnips and most of the Cabbage family.

The manures especially to be used for any one crop depend in a great measure on the chemical elements in the soil on which it is grown. This is readily known by a fair analysis, our object being to supply the nitrates, or superphosphates, or lime, or potash salts lacking, or not in sufficient quantities in the natural soil.

The chemist can tell us the food elements that gain access to the plant, and after the crop is harvested his resultant analysis shows what has been stored up or developed; but that which actually takes place inside the living plants—the vital chemistry, I may call it—is for the most part a mystery still. Hence, one of the mysteries of Nature is this, and it is one no chemist has as yet explained—*viz.*, why and how the vegetable products of the earth vary so enormously in character. From the same earth and the same atmospheric elements, and the same water, we obtain the most delicious of food or flavouring stuffs, the most potent of medicines, or the most fatal of poisons, and the magical laboratories are the living plants themselves, Peach or Pear, Grass or Grape Vine, Atropa, or Aconite, or Digitalis, Eucalyptus or Cinchona, as the case may be.

In a word, land culture, or rather plant culture, actually creates

wealth, whereas all other industries merely modify and make it more conveniently useful to our requirements. England is not quite sure of her practical monopoly in coal and iron, but she is sure of her soil, the plant wealth or produce of which may be almost indefinitely increased for all time.

Plants are really self-acting chemical laboratories, and may be economically considered as producing machines. The plant produces food and clothing for us unceasingly, and all we have to do is to start it going, and it works while we are sleeping.

One of the most remarkable of all physiological facts observable in a garden is, the variable powers possessed by different plants in the absorption and assimilation of nitrogenous manures. This power varies immensely in different individuals of the same species. Thus, if you sow all the grains in the same ear of Wheat, or all the Peas out of the same pod, it by no means follows that their behaviour in this respect is identical or even nearly the same. The old simile, "as like as two Peas in a pod," is not true. For some reason, at present not explainable, one or more of the Wheat grains, or of the Peas, will be more or less luxuriant than its neighbours, it will grow faster, and it will prove more fertile, and as a rule this is owing to its enhanced powers of feeding and assimilation, that is to say, in some occult manner it makes a better use of its environment than its relations, and so becomes what the gardener calls a better variety both as a grower and producer. It is the observation of this variability that has led to "selection" as one of the most potent phases of improvement by cultivation.

We have all heard the story of the gardener who inquired of the philosopher "Why the weeds grew more rampant in his garden than the flowers." "You see," said the wise man, "Nature is mother to the weeds, but she is only stepmother to the flowers." Even this view is not ever and always right, because we know now (as Herbert told us long ago) that certain species of plants are not always happiest—*i.e.*, most luxuriant and reproductive in their native habitats. For example, we can take the Scotch Thistle or the English Sweet Briar, both great nuisances to the Australian settlers; or the South European Cardoon, which has completely overrun some of the great Pampas or plains of South America, to the exclusion of their native vegetation.

Observation proves to us that some plants have a very wide range of climatic adaptability, such as the examples to which we have just alluded; while on the other hand we have plants that rarely do well except in their native places, such as the Durian (*Durio zebethinus*) and the Mangosteen (*Garcinia mangostana*). Again we have the Chinese Orchid (*Phaius grandifolius*) that is naturalised as if wild in Jamaica, and the matted and luxuriant Reed Orchid of Singapore (*Bromheadia palustris*), or the lovely *Lycopodium cernuum* that practically defies cultivation.

Gardening is essentially an art of trying experiments, and this is so in part because our physical knowledge of plants is so poor. In a word, we have not yet learned that the laws of a plant's physical structure, formed as they are by climate, &c., must necessarily govern, to a great extent, its cultural requirements. Broadly speaking, gardeners know that a thickened epidermis (as in Cacti and succulent plants generally), means that they thrive in a dry atmosphere, and in sunshine rather than in shade. The same is true of plants with thick woolly, or hairy or powdered foliage. On the other hand, Ferns of a thin translucent texture, or delicate-leaved plants with a thin epiderm full of stomata, require a moisture-laden atmosphere, and more or less shade; but there are thousands of cases where we can *à priori* know nothing of a plant's powers of resisting heat or cold, sun or shade, moisture or drought, except by actual experiment. You may collect two plants from a mountain-side, 10,000 feet or so in altitude, near the equator, and one will be perfectly hardy in northern Europe, and the other will die at the first touch of frost. Why this is we do not fully know; but we may at least keep the question in our minds, and hope some day to solve the problem.

I have said, that *à priori* we can never be perfectly certain of the temperatures or soils most suitable for any one plant unless we are carefully told how it exists in a state of Nature. Even when this information is given, it by no means follows that our imitation of native conditions will prove to be best suited to the plant. As we have said, native conditions are not invariably those best for some plants, inasmuch as they have thriven and increased better when introduced elsewhere. A good gardener is in an analogous position to a good physician, and will prescribe for a plant quite as reasonably as does the physician for a patient totally unknown to him.

It was until quite recently thought that unless a substance was in a soluble state, *i.e.*, soluble in water in the soil, it could not be utilised by the plant. This view is now modified, since it has been found that roots themselves, and especially their growing points, secrete or rather exude an acid ferment that renders soluble or permeable many substances not actually soluble or dissolvable in water alone. In this way I have seen the underground stolons

of "Couch-grass" (*Triticum repens*), bore straight through Potatoes and other fleshy tubers or stems; and only the other day saw a shoot of *Tropæolum polyphyllum* that had come up through a brick that had happened to be in its way. In a word, the old story that roots follow the line of least resistance is not always, even if often, true.

I am far from feeling that I have exhausted this great subject, rather do I feel that I have merely touched the hem or fringe of the question in a tentative kind of way. "Culture *versus* Nature" is really a question to be solved by each one of us in our own gardens, and I sincerely hope that these observations may be a help rather than a hindrance to our so doing.



VANDAS.

THE genus *Vanda* contains about thirty species, most of which are in cultivation; they are all epiphytal Orchids and natives of the East Indies and Malayan Archipelago. With few exceptions they require a considerable amount of attention to grow them well, and specimens of the stronger growing kinds several feet high and clothed with leaves to the level of the pot are exceptional. The whole of the genus have showy flowers, which are mostly fragrant, and which last a long time either on the plant or cut and placed in water. They require plenty of light; in fact, *Vanda* *teres* need never be shaded. The larger growing varieties may be cultivated in pots three parts filled with crocks, with a layer of good sphagnum on the top; the smaller kinds, such as *V. Amesiana*, may be grown in cylinders or baskets. With but one or two exceptions they require a high stove temperature and plenty of moisture from February to October, after which they require much less water, and none should be allowed to collect in the axils of the leaves. *Vandas* which are getting long and "leggy" may be cut down about February. The tops should be placed in pots or baskets with crocks and sphagnum, allowing the leaves to come as near the surface of the pots as possible, and if placed in a close moist house for a few weeks they will root readily, and can then be removed to their old positions without loss of leaves. While growing, a temperature of not less than 60° at night should be maintained, rising to 75° and upwards by day.

The following *Vandas* should be found in every Orchid collection:—

V. Amesiana.—Dwarf, stiff leaves with tapering points; racemes erect, bearing many fragrant flowers, each about 1½ inch across; sepals and petals blush, lip rich deep rose, with paler margin. Introduced by Messrs. Low & Co. in 1887.

V. Bensoni.—Leaves strap shaped, flowers 2 inches across, racemes bearing six to twelve flowers, sepals and petals yellowish green with chocolate spots, lip rose pink with darker apex, two white lobes at the base. Introduced by Messrs. J. Veitch & Sons in 1866.

V. cœrulea.—This is no doubt the easiest grown and the finest *Vanda* for general use. It flowers late in autumn, the racemes bearing five to twelve flowers, each 2 to 4 inches across; the sepals and petals are blue, the lip being darker; colour and size vary in different plants. Introduced from the Khasia Hills in 1849. This *Vanda* should be grown in cylinders in the Cattleya house.

V. cœrulescens is slender in habit, the racemes bearing many flowers of a bluish shade, with violet lip. Introduced from Burmah in 1869.

V. Denisoniana.—Leaves about a foot long, flowers 2½ ins. across, sepals and petals white, lip three-lobed, white tinged with green, the side lobes erect; the centre lobe being two-lobed at the apex.

V. Hookeriana.—Long cylindrical stems, slender; leaves terete, pale green, slender; the flowers, which are about 2½ inches across, are produced on racemes of two to five from the upper part of the stem; sepa's white flushed with rose; petals broader than sepals, white, tinted rose with purple spots; lip three-lobed, the centre lobe broad and fan-shaped, white with deep markings and spots of dark purple. Introduced from Borneo about 1879.

V. insignis.—An old favourite. Leaves 1 foot long; racemes about 1 foot long, bearing about six flowers; sepals and petals pale brown with dark chocolate spots, outsides dull white; lip three-lobed, side lobes white, centre lobe white, rosy purple at its apex.

V. Kimballiana.—Leaves 8 inches long, channelled, dark green; short erect racemes bearing about eight flowers each, 1½ inch across; sepals and petals white tinged with rose, lip three-lobed, side lobes curiously incurved, yellowish white spotted brown, centre lobe deep purple, crisped margin; long purple spur.

V. Roxburghi.—This was the first *Vanda* introduced into our gardens, and the genus was founded upon it; sepals and petals pale green marked with brown, white outside; lip three-lobed, side lobes white, centre lobe purple, darker towards its apex.

V. Sanderiana.—This interesting and remarkable *Vanda* (fig. 80) was introduced first by Messrs. Sander & Co. in 1882, and shortly after by Messrs. J. Veitch & Sons. It has leaves 14 inches long and an inch broad; flowers flat, 3 to 4½ inches across, racemes bearing several flowers; dorsal sepal pale rose, lateral ones yellowish with red veins finely marked; petals rose, each with a small patch of red spots; lip small, dull yellow with red streaks.

V. suavis.—A strong growing and free-flowering variety of *V. tricolor*; long racemes, bearing seven to twelve flowers, which are large and fragrant; sepals white, with chocolate or purple bars and spots; petals turned away, showing the white outsides; lip three-lobed, side lobes deep purple, centre one mauve, shaded purple.

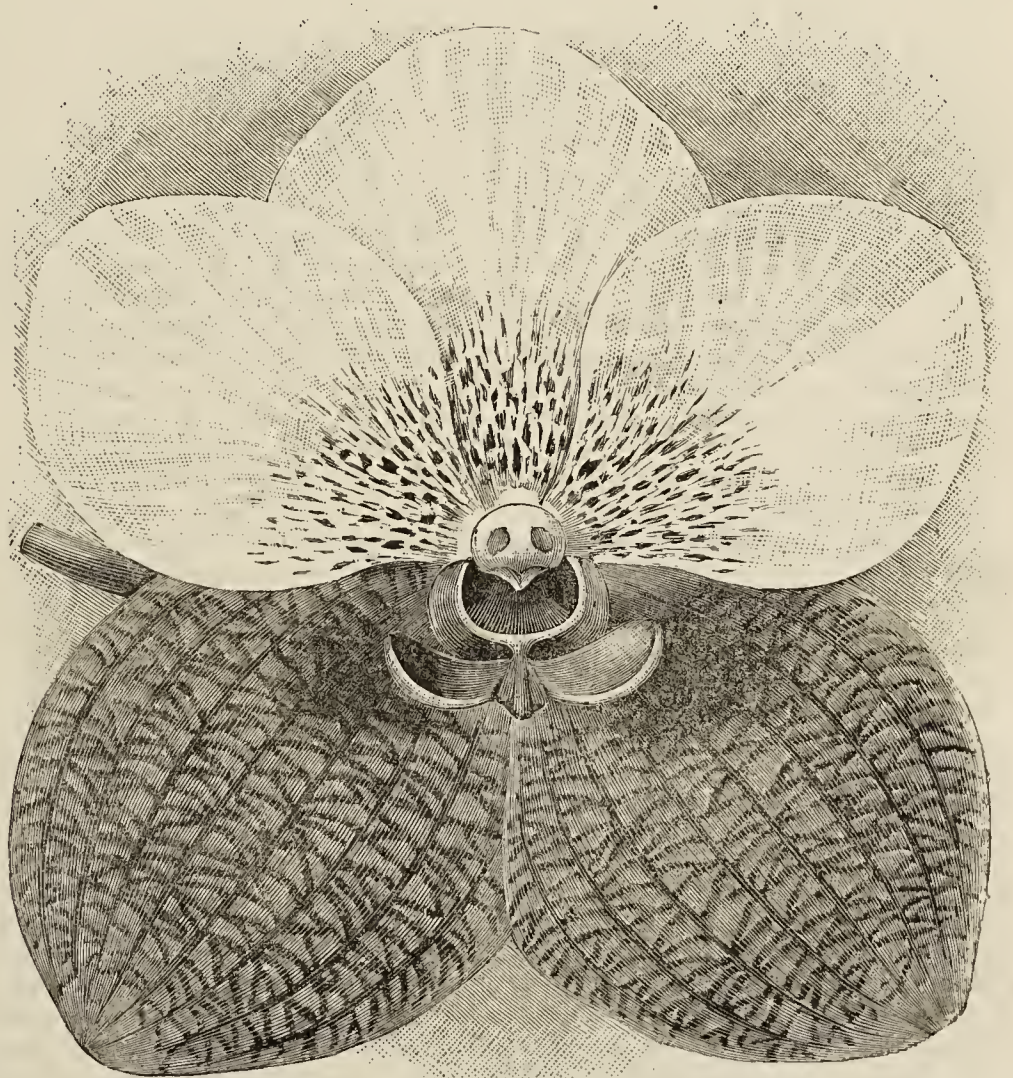


FIG. 80.—VANDA SANDERIANA.

V. teres.—Long terete stems and leaves; racemes two-flowered, flowers large; sepals white, shaded rose; petals broad, rose; lip three-lobed, side lobes yellowish, spotted inside, curving towards each other over the column, centre lobe rosy purple, cleft at the base. A splendid Orchid when well grown, requiring a distinct resting period during our winter. Introduced by Dr. Wallich in 1829.

V. tricolor.—Very like *V. suavis*, flowers rather more rounded; sepals and petals yellow, spotted chocolate red; lip bright rose, marked with white lines at the base. Introduced from Java by Messrs. J. Veitch in 1846.—C. K.

CYPRIPEDIUM ALICE.

AN award of merit was given to a distinct and charming *Cypripedium* named Alice, exhibited by Drewitt O. Drewett, Esq.,

at the Royal Horticultural Society's meeting on June 7th, and fig. 82 (see page 481) represents it. It is a garden hybrid, having been obtained by crossing *C. Spicerianum* and *C. Stonei*. The petals and lip follow the latter species, more particularly the former. They are long, narrow and much twisted, greenish yellow in colour, thickly dotted with purple. The lip is purplish brown edged with yellow. The dorsal sepal is incurved and arches over the pouch, so that the back, which is deeply flushed with rosy purple, shows the most conspicuously. The front or lower portion is soft blush flecked with rose. The general appearance of the flower is one of considerable grace. The foliage is long and narrow.

INDIAN ORCHIDS.

IN selecting the subject of Indian Orchids for this paper, I have been induced to do so chiefly with the object of showing that a considerable number of the most beautiful plants known in Nature, and formerly cultivated in the glass houses of this country with the most assiduous care, and, of course, with corresponding success, have of late years gradually receded in public favour, and many, indeed, appear to suffer a neglect at the hands of cultivators, which they by no means deserve. Without attempting to inquire into the cause of the disfavour into which many Indian Orchids appear to have fallen of late, and which may probably be as much assigned to the caprice of cultural fashion as to any other cause, I will bring under rapid review some of the most important genera of Orchids, in their horticultural bearing, whose homes are in the far East, and endeavour to show that they are still as deserving a place in the Orchid collections of this country as they formerly held. Although in treating of Indian Orchids generally I must be allowed to use the term in a wider sense than the name implies, and include within its meaning the Malayan region, for in reality the greater part of India proper, the whole of the Eastern Peninsula, or Indo-China as it is sometimes called, and the great Malayan Archipelago form, in a botanical sense, but one region in which all the climatic phenomena peculiar to the tropics occur, and over which a general similarity of climate prevails, except where the local conditions are such as to interfere with the general law, as in the high table land of the Deccan and the arid districts of the north-west, which are destitute of Orchids. As a natural consequence of like climatic conditions, the plant life of the whole region, one of the richest on the globe, is made up of an immense number of affinities that are more or less represented in every part of it, and this is especially the case with Orchids. Dendrobes, *Cœlogynes*, *Vandas*, *Aërides*, *Saccolabiums*, and *Cypripedes* are found in New Guinea and the Philippine Islands almost as plentifully as in Lower Burmah, Assam, and the tropical Himalaya.

Within the British Indian territories there are about 1400 species of Orchids out of a total of 14,000 known flowering plants. It will not, therefore, be an exaggerated estimate if we assume the number of species of Orchids dispersed throughout the whole region under review to be about 2500, but of this large number not much more than one-tenth would be considered of sufficient interest or beauty to be worth their house room in Europe. They include a most surprising variety in form, habit, size, colour, and shape of flower, more so than is to be found in the American *Orchideæ*. From the gigantic *Grammatophyllum speciosum*, with stems 10 to 12 feet high; the scarcely less robust *Staurosis lissochiloides*, still occasionally seen in collections under the name of *Vanda Batemanii*; that Goliath of Dendrobes, *D. taurinum* of the Philippine Islands; through every gradation in size and habit to the minute and curious *Drymodas*, and the tiny *Bulbophyls* of Sumatra, whose dimensions can be contained within an ordinary wineglass, while in strange contrast to these are the scrambling *Galeolas* that climb to the top of trees 50 to 100 feet high, and the beautiful *Vanda Hookeriana* that sprawls over the low jungle bushes in Perak in such profusion as to obtain the local name of Kinta Weed.

The stations occupied by the members of this vast assemblage of Orchids are scarcely less remarkable than their surprising variety of form. Some are found in the Mangrove swamps on the sea coast, and others delight in the hot, damp, low-lying tracts of the Sunderbunds and the delta of the Irawaddy, while in the tropical Himalaya some ascend to 8000 and even 10,000 feet. Between these extremes Orchids are found all over the Indo-Malayan region in well-nigh every possible situation where the all-important element of moisture is sufficiently abundant. In such a diversity of stations it occurs sometimes that a most desirable species for the Orchid collection of Europe grows under conditions and with an environment that it is simply impossible to imitate artificially, even approximately in our glass houses, and thence a difficult problem is brought to the gardener to solve. Instances will be noted in the different genera I propose to bring under review.

One is tempted to ask, How is it that amidst such a wealth of

colour, form, and fragrance as is to be found in the Indo-Malayan Orchid, comparatively few species maintain their ground in the general estimation of amateurs? Doubtless such Orchids as *Dendrobium nobile*, *D. thyrsiflorum*, *D. Wardianum*, *D. Brymerianum*, with its marvellously fimbriated labellum; *Cœlogyne cristata*, the ever useful *Cypripedium insigne*, the elegant winter flowering *C. Spicerianum*, and some of the choicer hybrids of which it is one of the parents, the lovely *Cypripedium niveum* and its immediate allies, and a few others that can be named will always hold their own; but the bulk of the species and varieties of these same genera that were once in such high repute seem to have somewhat paled in public favour before the splendid array of South American beauties represented by the numerous *Cattleya labiata* forms, the Brazilian and Mexican *Lælias*, the Columbian *Odontogloss*, and some of the Andean *Masdevallias*. It is among these that we now find "specimens" of cultural skill. "Specimens" of *Aërides*, *Vanda*, *Saccolabium*, and *Cœlogyne* are well nigh things of the past. At one time the pride of their owners and the admiration of the public when exhibited, they are now nowhere to be seen; they have been elbowed out to make room for their more fascinating South American rivals.

One of the assigned causes of the comparative neglect of Indian Orchids generally should, however, here be noticed. They require so much more artificial heat to bring them to perfection, and the consequent greater amount of attention than is required for the cooler growing *Cattleyas* and *Odontogloss*. Too much stress has undoubtedly been placed on this point, for experience has long since shown that Indian and Malayan Orchids, those that require a purely tropical treatment, are more successfully cultivated in the glass houses of this country in an average lower temperature than in a temperature raised by artificial heat to nearly the same mean as that of their native home. Moreover, in the details of their culture, while an unrelaxed attention is necessary all through the year, they are not more exacting in this respect than the popular South American kinds.

I will next take a glance through the Indo-Malayan genera of Orchids that are most rich in species and varieties worthy of the cultivator's care, and I doubt not that it will be manifest how many fine and interesting forms there are well worth more consideration than they actually receive.—V.

(To be continued.)

LATE PLANTING OF SHRUBS.

GIVEN a properly prepared plant, and the proposition is sound that a shrub or tree may be transplanted at any season of the year. The exigencies of labour demand that most of this important work should be overtaken during the late autumn and winter or early spring months, but it is doubtful whether these times are the best. Enormous quantities of newly planted young trees have perished during the winter and spring of the last three years, which, if left until late spring or early summer, would in the great majority of cases have taken root and lived. However, the difficulties in the way of extended summer planting are so great that a note of its utility is only made here in passing.

The main object of this note is to call attention to the certainty of success attending the removal of shrubs at the present time. Few years pass without our having to transplant some. A big tree may fall and smash everything in its way, and the only solution of the difficulty is to make good the gap by means of a few large shrubs. I never knew these fail, and in a couple of months no one could tell by their appearance that they had so lately been transplanted. In the beginning of the present month I had to transplant a few good sized shrubs—*Rhododendrons*, *Yews*, and ornamental *Coniferae*—and am now waiting an opportunity to plant a 6 foot high hedge, and a blind of good sized shrubs for immediate effect. I am sure many readers of the Journal would be glad to get jobs such as these out of hand with credit to themselves, but may feel a diffidence to attack such work at this season. As already stated, the work can be successfully undertaken. Natural conditions are favourable—*e.g.*, the soil is warm, the plants are making plenty of young roots as well as young growth, and it only requires ordinary intelligence in carrying out the work with rapidity and sound judgment in selecting the plants to ensure complete success.

To descend to details. A dull or drizzly day should be chosen. If after a heavy rainfall so much the better. If, however, the soil is dry, well water the plants to be removed before beginning to lift. Select those shrubs which are known to possess plenty of roots near home, so that a fair ball may be secured. Have the position each shrub is to occupy prepared and ready before the shrubs are lifted. When lifted, get each plant into its place and the roots covered with soil as quickly as possible, finishing up the planting of each with a

thorough drenching of water. If the weather becomes sunny and dry give water at least once a week, or, if very dry, twice a week. As a rule this will not be necessary for long, as new roots are very quickly formed.

In few instances has it been required that water should follow that given when the shrub is planted, and our corner is one of the driest. But the point to be noted is that water may be given in abundance just now with benefit, and if there is any doubt whether sufficient may have been given then to water again will do no harm.—B.

POINTS ABOUT PÆONIES.

LIKE Roses, the question has come to be with Pæonies, Which shall I choose? The number of good varieties has swollen so enormously that a vigorous weeding out has to be practised before a collection suitable for a small or medium-sized garden can be made sufficiently limited in extent. It is a thousand pities that this necessity should force itself upon the grower, for it inevitably means the rejection of many varieties that are not only meritorious in a certain degree, but even, in some cases, of high quality. From another point of view the multiplication of sorts is not to be deplored, for the wealth of material it provides gives ample room for individual tastes and caprices to have free play. There can be no disputing the great value of the Chinese Pæonies in the developed forms we now have. They are vigorous growers, the majority free bloomers, bearing large, handsome, fragrant flowers with a great diversity of hues. These are points no one can afford to despise, and if the hackneyed phrase, "they are not so much grown as they ought to be," may still be applied with justice, it is satisfactory to find that a steady advance in popularity annually robs it of a little of its sting.

Without venturing into comparisons, that in this case would be out of place, it is safe to say that the Chinese Pæony in its present improved state is fitted to vie even with the Rose, and in its adaptability for town gardens it has one point of advantage over the regal blossom. If the rooting medium be of the right kind, and there is enough of it, atmospheric trials will be successfully endured. Perhaps it would not be too much to suggest that room might be found for groups in both town and country places just as it is for Rhododendrons. The robust growth, luxuriant leafage, and bold rich masses of colour exactly lend themselves to free grouping. We have no wiry, spidery plants to deal with here, having flowers that only lend themselves to microscopical inspection, but ample, generous growers, with a glow of colour about them that has a noble effect at a distance. Moreover, the huge blooms are borne well up on substantial stems, so that their light is not hidden under a bushel, nor are we without something substantial to hold them by in case cutting is practised. I should much like to see well arranged groups of the Chinese Pæonies—long, oval-shaped, or semicircular beds of them for example—in many flower gardens, and I feel satisfied that their presence would not be regretted when they were well established. Lime is as poison to Rhododendrons and smoke to Roses, but Pæonies will endure both if they have a deep root run, and the significance of this fact ought not to be ignored.

It must not be thought that the plants are like the universal pill—good for everything and everywhere, never failing in their efficacy. Not a few persons have had to complain about them, chiefly on the score of non-flowering. There is often valid ground for the objection, for in the number of varieties now offered there is no inconsiderable sprinkling of pronounced shy bloomers, and till these are weeded out the same complaint is sure to crop up. It is well that some of our leading growers are on the alert respecting this weakness, and eradicate the offenders without mercy. The more unsparing they are the nearer we shall get to the acquisition of a number of proved sorts on which absolute reliance may be placed, and when this happy stage is reached a more rapid growth in popularity may be confidently prognosticated. But there is a cultural side to the problem too, and this individual growers must solve for themselves. The plants have a decided partiality for a deep root run, and in a very shallow medium unsatisfactory growth and blooming must be looked for. Wherever the plants are put—whether singly in mixed borders, in clumps at the front of shrubberies for lighting up dark or bare spaces, or in groups as previously suggested—let the ground be dug two spades deep, the base thoroughly loosened, and some decayed manure well worked in. Merely tickling the soil with a trowel is not enough, nor, as the plants are not surface rooters, will mulchings and surface applications compensate for shallow planting. With a deep and free root run trouble and disappointment with Pæonies need not be feared.

The suggestion as to grouping these handsome plants, in which the opinion of others, pro and con, would be of value, was

supported by an inspection of Messrs. Barr & Son's large collection at Long Ditton a few days ago. They have about 50,000 blooms open now, and the large beds of plants are a magnificent sight, forming a huge group close to the London and South-Western main line. The weeding-out of shy bloomers, referred to previously, has been, and still is, vigorously carried out, and faith in the deep planting system advocated is strong and well founded. The former insures the reliability of the collection, the latter gives vigorous healthy growth and splendid flowers. It is hard to choose amongst so many, but the following were exceptionally good—*Rubra Triumphans*, very rich crimson with purplish suffusion, one of the earliest; *Reine des Roses*, rich rose, very sweet, large, fine and free; *Virginie*, silvery rose, fragrant; *Madame Lebon*, deep rosy cerise, large, handsome and a free bloomer; *Madame Furtado*, bright rose with silvery suffusion, large and sweet; *Madame Calot*, a flesh-coloured Hollyhock-like bloom, beautiful and fragrant; *Madame Boucharlataine*, rich purplish crimson, sweet; *Général Bedeau*, centre lemon, guard petals soft rose, with a charming rosy bud; *Josephine Parmentier*, silvery rose, very sweet, large, full and handsome; *H. M. Stanley*, an enormous flower, rich rose, fragrant, a dwarf grower; *Faust*, blush, very large; *Duke of Wellington*, broad pure white guard florets, centre tinged lemon, sweet, and a very free bloomer; *Madame de Vilmorin*, flesh-rose, like a *Malmaison* Carnation, dwarf and free; *Prince Pierre Galitzin*, pink guard florets, lemon centre, very pleasing in the bud and when half-developed; *Souvenir de l'Exposition Universelle*, bright rose, sweet, worthy of a shorter name; *Madame de Vetry*, soft rose; *The Queen*, rich rose with silvery edge, salmon shade in young stage, sweet, well-formed, large and handsome; *Eugénie Verdier*, pale silvery pink, very full, May-scented; *Whitley*, fine white, very floriferous; *Virgo Marie*, pure white, very broad petals; *Prince Prosper*, purplish crimson, very rich and glowing; *Taglioni*, rose, a wonderfully free bloomer; and *Prince Imperial*, velvety crimson with purplish suffusion, late.

That most of these are of French origin their names will show only too well, but despite amenities of pronunciation, we owe a great deal to our neighbours for what they have done with Chinese Pæonies. Having effected so little in crossing, it behoves us the more to show our skill in utilisation.—W. P. W.

PANSIES AT TAMWORTH.

I HAD heard repeatedly of Mr. Wm. Sydenham being a cultivator of Pansies on an extensive scale, and I determined on a visit in order to see what really was being done by him, and as one of the oldest cultivators in the kingdom I was prepared to criticise his method of culture if not as I might think up to the mark. Tamworth is a place of considerable historical interest, and lies about half way betwixt Birmingham and Derby on the Midland railway. Mr. Sydenham has at his command a large sheltered garden where Pansies are grown—well, I was going to say, by the acre; but some extent of the operations carried on there may be gleaned from the fact that close upon, if not quite, two hundred thousand plants were to be seen there in the winter.

The system of cultivation is simple enough. A large number of garden frames are used for winter protection, and these are first placed upon the areas of ground prepared for them, manure and leaf soil are worked in, and the plants find their winter quarters there. Three-fourths of the plants have been sent away to all parts, and there are still Pansies everywhere, one bed alone on the lawn containing one thousand plants of *Duchess of Portland*. There are a large quantity of nursery beds containing strong plants for immediate orders, the demand continuing into July, and many thousands are planted out by themselves to yield seed for sale.

His collection of stock plants, not for sale, are in these frames, which are shallow, the sides giving protection from strong winds, and the plants are extra strong and in vigorous health, many of the flowers being of great size. Shortly thousands of exhibition blooms of fine quality can be had daily. Mr. Sydenham uses as a stimulant what he calls his Pansy manure, and the plants certainly show its value, for I never saw so grand a lot of plants, and I say this after a long life in Pansy work.

I did not ask how many varieties were grown, but he has a large number of new kinds under trial, many of which will be shortly sent out to customers. Amongst the new ones I think from what I saw of them in the closing days of May I may speak highly of the following:—*Lord Tennyson*, a grand flower from the north; *Annie Garrett*, a seedling from Mrs. Hugh Weir, distinct and fine; *Harriet Smith*; *The Lady*, a seedling from Allan Ashcroft; *Tamworth Hero*, a rich dark variety; *Miss Benion*, style of Miss French and a better grower; *Madame Adelina Patti*, very distinct;

Thomas Garrett, distinct and fine; Mrs. Hanbury, a fine promising grower; Earl of Warwick, a light flower with dark top petals and solid clean rich blotch; Home Rule, a claret-shaded flower, with dark blotch and good form; and Mrs. J. D. Stuart, a light flower with a very dark, almost black, clean-cut blotch.

In the general collection I noticed some which will be discarded and must make way for finer sorts. But there are a great number of beautiful flowers, the following amongst them—viz., David Rennie, very fine; James Binning, Lord Hamilton, Royal Sovereign, very bright in the rich gold colour; Conqueror, a fine flower; Neil Leitch, Mrs. John Downie, Lord Bute, John Lamont, Mrs. Duncan, Mrs. Hugh Weir, extra fine; Donald Morrison, J. S. Irvine, Mrs. John Ellis, Pilrig, Edith Ellis Brown, James Alexander, Kate McArthur, Maggie A. Scott, Maggie Lauder, bright and fine; Mrs. Freeland, Mrs. Mark, William Evitts, Arthur Folkarde, Robert Stobbie, Weir's Hugh, Tom Travis, a grand flower; Miss Helen Hunter, Mrs. Maxwell, Mrs. Lister, Agnes Mabel, Henry Eckford, Mary Sydenham, and many others. Amongst so many it is difficult to select only a dozen or two, but from the sorts I have named first-class flowers can be selected.

Of course watering in dry weather has to be seen to, but the river runs close by, so that water is very accessible, and a little mulching of decayed manure will be used should dry hot weather set in. One most essential point in the successful cultivation of the Pansy should be borne in mind, but unfortunately is not generally, and that is early planting. Pansies should be planted if possible not later than the beginning of May, earlier if possible, so that they may get established before hot dry weather sets in. Many are purchasing now, but if failure follow the fault rests with the buyer, for newly planted out Pansies and Violas cannot resist safely the influence of hot dry weather and sunshine, and small unsatisfactory flowers follow even if the plants make headway. Those who wish to have Pansies in their full beauty of size, form, and colour, should purchase in the autumn, and give them a little protection in very bad weather. The Pansy is quite a hardy plant, but suffers from blustering winds and an excess of wet and dampness in bad weather.—W. DEAN.

BRITISH FERNS.

UNDER the auspices of the Brighton and Sussex Horticultural Improvement Society, Mr. J. Lewis of Preston Road, Brighton, read an able and interesting paper in the Imperial Hotel, Brighton, on "British Hardy Ferns." There was a large attendance of members. The chair was at first taken by the President (Mr. C. W. Catt), and later on by Mr. W. Balchin. Mr. Lewis said that in his opinion the Ferns of Great Britain were equal, if not superior, to those of any other country for gracefulness and beauty; besides, all being hardy, they might readily be cultivated by the humblest grower. British Ferns were especially adapted for cultivation in large towns, in places where almost all flowering plants refused to grow. Most persons in the most thickly populated districts had some space at the back of their houses, and with very little trouble or expense these could be made to look very attractive for several months in the year, and many a window from which the prospect was only a blank wall might be made to look cheerful and comfortable by training a fernery of the hardiest species around it. Again, how often they saw in various papers devoted to horticulture questions asked as to what were the best Ferns for rooms. Several of the varieties of British Ferns were admirably adapted for this purpose, more especially the Scolopendriums and Polystichums.

Altogether there were forty-two species of British Ferns—he was referring of course to those found wild in the United Kingdom and the Channel Islands. He particularly drew attention to this as, although there were only forty-two species, there were upwards of 2000 varieties, some of them of the most lovely description, and so utterly and entirely different from the normal form, that if asked to assign some of these to their particular species very few persons would be able to do so. Mr. Lewis proceeded to lucidly explain a large number of species of Ferns and some of their many varieties, illustrating his observations with a considerable number of very fine specimens, and with drawings, sketches, and photographs.

Coming to the propagation of Ferns and the wonders of the spore, he said the reproduction of Ferns from spores was one of the most interesting studies the botanist could follow. There was an essential difference between the Fern spore and the seeds produced by flowering plants. In the case of flowering plants the seed was the product of a fertilised flower, and, when sown, the immediate offspring was a plant, like the parent, and capable of producing flowers in its turn. It was not so with the Fern spore, which was not the product of fertilisation, nor did it produce directly a plant anything like the parent, but another kind of plant, a kind of small green scale called a "prothallus." Upon this, on the under surface, there were then produced certain organs akin to flowers, which, in a second germination, became fertilised and the young Fern was produced. Many of the beautiful varieties of British Ferns that were now extant were hybrids, but it had been only during the last few years that botanists would admit that Ferns could be hybrids. There was no doubt that if spores of different varieties of Ferns were mixed, there was every prospect of obtaining several new and beautiful Ferns.



ROSE SHOW FIXTURES IN 1892

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|---------|---|
| June 23 | (Thursday).—Ryde. |
| " 28 | (Tuesday).—Maidstone. |
| " 29 | (Wednesday).—Brighton*, Farningham, Ipswich, King's Lynn*, and Richmond (Surrey). |
| " 30 | (Thursday).—Canterbury, Eltham, and Winchester. |
| July 2 | (Saturday).—Crystal Palace (N.R.S.) |
| " 5 | (Tuesday).—Bagshot, Diss, Earl's Court*, Gloucester, and Sutton. |
| " 6 | (Wednesday).—Brockham, Croydon, Farnham, and Hitchin. |
| " 7 | (Thursday).—Bath, Lee*, Norwich, Windsor, and Woodbridge. |
| " 9 | (Saturday).—Reigate. |
| " 12 | (Tuesday).—Hereford and Wolverhampton.† |
| " 13 | (Wednesday).—Tunbridge Wells. |
| " 14 | (Thursday).—Helensburgh. |
| " 16 | (Saturday).—Chester (N.R.S.). |
| " 19 | (Tuesday).—Moseley* (Birmingham), and Tibshelf. |
| " 20 | (Wednesday).—Christleton. |
| " 21 | (Thursday).—Trentham and Worksop. |
| " 23 | (Saturday).—Bedale and New Brighton. |
| " 28 | (Thursday).—Halifax and Southwell. |
| " 30 | (Saturday).—Ripley. |

* Rose Shows lasting two days. † Rose Show lasting three days.

—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

IPSWICH ROSE SHOW.

As will be seen by advertisement this Show will be held on June 29th.

VARIETAL CHARACTERISTICS.

I HAVE not a word to say against the N.R.S. removing Duchesse de Caylus out of the list of exhibition varieties, but all the same I should estimate a well-grown and really good bloom of that variety more highly than an ill-grown and obviously faulty Charles Lefebvre, or any other Rose. It is clearly desirable to discourage the growth of inferior and promote that of superior varieties; but I hold firmly to the idea that superior cultivation in whatever variety represented should be recognised. As a matter of fact, it is recognised by all the best judges with whom I have been associated, not in Rose classes alone, but in everything exhibited.

It is not often that the "premier" prize is adjudged to the largest example in competition, but if it is of full size according to the variety and is remarkable for the combination of other properties—namely, colour, symmetry and substance, it then stands higher, and justly so, than does another example, be it Rose or Apple, that in its nature is larger, but is marked by defects in other essentials that go to make up a perfect specimen.

If floral and horticultural societies do not recognise superior cultivation as well as improved varieties they only do half their duty, and I am not sure it is the best half. The most skilful cultivators and exhibitors may safely be trusted not to overlook improved forms; they are quick to see and secure them, and the relatively inferior are discarded with little compunction.

If a judge does not know he ought to know the typical standard of excellence of each variety of flowers, fruit, or vegetable brought under his notice. In Roses it is easy enough to keep the ideals in mind, and so far from my regarding Mr. Raillem right in his views, as weighing the matter from a "twelve blooms of a sort" test, I hope he will not mind my saying I think just the reverse; moreover, I am almost, if not quite, convinced that if he were judging a number of "twelves" he would grant the awards on the principle which he does not appear to approve. He would do this, unconsciously perhaps, but do it all the same, because from what I have seen it prevails in all well judged exhibitions.

It is all very well in theory to have a one-size standard for all varieties, but in practice it will not work, and the greatest combination of points of excellence represented in individual varieties is bound to turn the scale in their favour. Therefore it is that we see so many stands of large bloom varieties at the tail end of the prize lists because better examples of naturally smaller varieties force their way to the head.

My ideal of excellence when judging is the most perfect representation of highly finished cultivation and arrangement at the moment of adjudication. What is Mr. Raillem's?—AN OLD SHOWMAN.

CATHERINE MERMET.

THIS Tea-scented Rose is admirably adapted for training underneath glass roofs or round pillars in a greenhouse. One growing in a narrow, well-drained border in the conservatory here and trained to wires at the west end of the house has grown and flowered freely during the last twelve years. It is in fine condition, and is now showing a second crop of blooms this year, the first being produced early in spring, continuing to flower until the end of the first week in the present

month. The blooms now showing on the points of fresh young growths will be greatly increased in size by giving liberal supplies of liquid manure to the roots and alternate surface-dressings of Thomson's Vine and plant manure immediately before giving clear water. The blooms of this delicate flesh-coloured Rose, when grown under favourable conditions as regards atmosphere and a good sound loamy soil and treated in the manner indicated, attain to large dimensions. The growths are annually pruned back to within one eye of their base when they have shed their leaves.—H. W. WARD, *Longford Castle*.

ROSE JUDGING.

As it was owing to his accustomed kindness that Mr. G. Paul allowed me to publish his opinion, and as he told me that he could not enter into any lengthened controversy, I venture to say on his behalf that he, neither in his paper, "*Rosarian's Year Book*" (1889), nor in his letter from which I sent extracts to the *Journal*, denies that there are degrees of excellence, or the contrary, in a Rose. To anyone who reads his article on judging it must, I think, be perfectly clear that he not only recognises but specifies degrees of excellence. The point of difference, as I understand it, between him and Mr. Raillem is this: Mr. G. Paul says that for, *not from*, a Rose of decided badness one and sometimes two points should be struck off. He mentions four instances of such badness. First, undersizedness; second, past colour or fadedness; third, bad shape; fourth, an over-open flower. Mr. Raillem, as I understand him, while allowing that other deficiencies should be punished, would still reward a Rose of good form, no matter how faded it may be. Here I state we have a distinct difference of opinion between Mr. G. Paul and Mr. Raillem. Mr. Raillem, in his first letter, said that these opinions were quite in agreement. I cannot think that this is the case.

As to Mr. Raillem's remarks about size, may I call his attention to Definition v., page 13, N.R.S. annual report? "Size shall imply that the bloom is a full sized representative specimen of the variety." I am sorry to be obliged to write this last letter, which I have endeavoured to make as brief as possible.—HENRY B. BIRON.

HAZELGROVE HOUSE, SOMERSET.

THIS fine old Somersetshire mansion, with its richly timbered and extensive park, is the ancestral home of the Mildmays, a very old English family, one of whom—Sir Walter Mildmay—was Chancellor of the Exchequer during the reign of Queen Elizabeth, and at one time entertained Her Majesty, together with a large circle of her courtiers, in right regal manner at Hazelgrove. Since that time the greater portion of the old mansion has been taken down and replaced by a larger and more modern edifice; but the ancient dining room in which Sir W. Mildmay entertained his Sovereign and her courtiers is still retained in excellent preservation, with fittings and furniture much as it appeared in those past days of chivalry and merry-makings, and is now used as a smoking room.

The timber in the park is remarkable for fine examples of Oak and Elm, especially the former. One especially, called Elizabeth's Oak (under the spreading branches of which it is said Her Majesty danced with her courtiers at an outdoor ball), girths 32 feet at 3 feet from the ground and 39 feet just above the ground line, a fit companion this for those celebrated "Monarchs of the Woods" to be found in Sherwood Forest, Notts. During recent years it has lost numerous large limbs, the result of storms and gales, but the wounds thus caused have been covered with lead or zinc to keep out moisture and with the object of preserving as long as may be this living link of the present with the long dead past.

The present owner of the mansion and estate is Arundell St. John Mildmay, Esq., a gentleman who has the respect and esteem of the whole of his tenantry and the inhabitants of the adjoining villages. The modern portion of the mansion is a very large and imposing structure in the Grecian style of architecture, and has a very noble-looking south front. It is approached by a carriage drive nearly half a mile in length through the finely timbered park, especially noticeable in which is a grand avenue of English Elms, vying in size and majestic appearance with those at Fountains Abbey in Yorkshire.

In the extensive lawns and pleasure grounds is a valuable collection of Italian statuary, and numbers of very fine Conifers 30 to 40 feet high, grandly furnished to the ground line. Most of them were raised from cuttings, and planted by the present skilful gardener (Mr. John Alliston) fifteen years ago. Amongst these the most noticeable are *Cupressus macrocarpa*, *Thuja borealis*, *Thuja Lobbiana* and *gigantea* (the latter a splendid example), *Cryptomeria elegans*, *Cupressus Lawsoniana*, and *L. erecta viridis*. Also there are some grand Cedars (the climate of Somerset seems to especially favour the growth of Cedars, as in all parts of the county we meet with numerous fine healthy specimens), some very fine specimens of *Piceas*—*nobilis*, *pinapo*, and *Webbiana*; also a grand *Taxodium sempervirens*, 60 feet high, and well furnished to the ground. In the park are many very large trees of flowering Thorns, including a notable specimen of the celebrated Glastonbury Thorn, which breaks forth in leaf and flower before the wintry weather has left us, and whilst vegetation in all other trees is still dormant.

The kitchen gardens are large and good. A gravel walk $7\frac{1}{2}$ feet wide and 140 yards long runs through the centre, flanked on each side by herbaceous borders 7 feet wide filled with Roses and a good collection of hardy plants, backed by fine Yew hedges. Across the centre of the gardens at right angles with the above runs another walk 7 feet wide, with ribbon borders on each side, and these backed by hedges of Lawson's

Cypress, which bears close clipping remarkably well. These hedges are treated the same as are the Yew hedges, and are equally effective, well furnished, and in good condition. The long walk first mentioned leads to an elevated plateau or look-out, from which a fine view is obtained of many miles of country, and, on a clear sunny day, a shimmer of the waters of the Bristol Channel may be seen in the far distance.

The glass erections are mostly old, but turned to good account. There are three vineries, all fully stocked with plants in winter. At the time of my visit, several weeks ago, especially noticeable were very fine *Callas*, *Cinerarias*, and *Solanums*. The back wall of the late vinery is well covered with large and healthy Roses, which yield a good return annually before the Vines have made sufficient growth to shade them too much.

One of the most interesting features of the place to a gardener like myself was, however, the superb culture displayed by Violets. In various places outside were long frames filled with the most vigorous and healthy plants, throwing up large flowers in such abundance as is rarely seen. They are grown both for sale and home supply, large numbers being every week sent to London. During the months of February, March, and April as many as 1500 per week are gathered. The sorts grown are *Marie Louise* and the large double white var. *Comte de Brazza*, about two-thirds of the whole stock being of the latter variety. They are grown in unbeated frames, and the vigorous foliage and numerous large flowers testify most fully that Mr. Alliston is a master in the art of Violet culture. Some hints from him as to the methods he adopts, which give such excellent results would, I am sure, be valuable to *Journal* readers.

I cannot close my notes without expressing to him my thanks for the open-handed cordiality of his greeting to me on the occasion of my visit, and the pains taken by him to show me everything of interest to a gardener.—W. K. W.

OCCASIONAL NOTES.

ALLOTMENTS.

WHEN passing through Esher very early in the spring my attention was drawn, for it was then evening, to a number of men hard at work trenching up a large piece of old rough pasture land which had been let by the Sandown Park Racecourse Company, locally, for allotments. The labour which had to be put into the preparation of the soil was arduous enough and merited at least the remission of half a year's rental. I passed by the same ground a few days since, and saw with great satisfaction that this labour was now bearing good fruit, for all over the area were apparently good crops of Potatoes, Peas, Runner Beans, Cabbages, &c., and here and there some flowers, showing that the privilege thus granted had been highly appreciated. It is satisfactory to learn that this admirable display of local gardening taste is to be followed in the winter by some County Council lectures on gardening, and very probably in another year there will grow up a far larger demand for allotments. Just recently, too, I met Mr. Jay, the chairman of the Epsom Local Board, a local farmer and landowner, who, moved by the interest shown at Epsom in the County Council lectures on horticulture, set apart 6 acres of excellent ground near to the town, all of which was taken up at once as allotments, and Mr. Jay told me that they were all well cropped and doing admirably. How interesting these facts are, and they are but a couple out of many as tending to prove beyond the possibility of dispute that not only is there great land hunger amongst the workers in the kingdom for small plots or allotments, but that there is also plenty of ability as well as will to thoroughly cultivate it. The proposals put forth with so much sound judgment to hold in connection with allotments competitions for prizes and demonstrations as to correct methods of cropping and cultivation by competent instructors during the summer merit the highest approval and encouragement. We are only yet on the verge of a great horticultural upheaval throughout our rural districts.

VARIEGATED ZONAL PELARGONIUMS.

Looking over my old gardening books I came across Mr. Peter Grieve's interesting pamphlet on the above named class of plants, written in 1868—that is, twenty-four years ago, quite old history in gardening. In all that relates to the method of raising new varieties, recording of crosses, and much other purely historical or technical matter it would not be very difficult to create interest. Somehow information of this description soon gets to be regarded as outside the range of practical gardening, although some specialists, curious to learn how this or that was produced, may study it with advantage. But Mr. Grieve's book is not needful to enable us to realise a fact; nor that there is a gradual tendency on the part of those who still indulge in summer bedding out, and they are legion, to return to many of their old loves in bedding plants, and golden and silver bicolors and tricolors are once more becoming popular. I notice in gardens that all the various sections silver, golden, and bronze Zonals and golden tricolors are now much more largely planted than they were a few years since; and I attribute this to the recent past two summers having been detrimental to flower production, whilst foliage plants came out so favourably. Some varieties have never fallen into disrepute, and such forms as *Flower of Spring* and *Crystal Palace Gem* have not at any time been disregarded. So far as these and many others of this bicolor character are concerned there is no question as to their adaptability for outdoor or bedding decoration. They have been too well tried. It is not so with the golden

tricolors, as many plants which with special culture under glass have displayed beautiful coloration have burnt and utterly failed outdoors. That was early found to be the case with the silver tricolor section, the leaves of which, such as Italia Unita, Lucy Grieve, &c., always displayed in any weather outdoors too much delicacy of constitution to enable them to withstand exposure. All these highly coloured and refined foliaged varieties look pretty enough as pot or pan plants, grown in frames or cool greenhouses; but they are hardly worth the trouble which must be taken with them, especially when it is possible to get so much beauty from other and more easily grown plants under similar conditions.

It is rather odd to find that a variety so old as Mrs. Pollock, raised in 1857, should still be one of the most widely grown for bedding. It gives very good colour, but not an excess of gold tint, hence the foliage is firmer and more enduring than is that of some richer coloured and later raised varieties. Sophia Dumaresque also has been a very useful variety. Probably there is now more grown of Flower of Spring, silver bicolor; Crystal Palace Gem, golden bicolor; Mrs. Pollock, golden tricolor; and Marshal McMahon, bronze and zonal, all now quite old sorts as bedders, than any other varieties. Perhaps those who on behalf of the *Journal of Horticulture* may from time to time during the present summer send notes of the best bedding displays in the country will not fail to note the revival of the variegated Pelargonium, and what particular sorts seem now to be most favoured, as it is pretty certain that after so many years' experience only the fittest have survived. Mr. Grieve, in the earlier pages of his book, mentions specially the use which he made of some of Mr. Kinghorn's earlier varieties. It is well we should sometimes be reminded of those who were the pioneers in this section of horticulture, and amongst others I would remember the late Mr. Kingsbury of Southampton.—A. D.



EVENTS OF THE WEEK.—To-day (Thursday, June 23rd) Ryde Rose Show is held. On Saturday, the 25th, there will be a meeting of the Royal Botanic Society. On Tuesday, the 28th, Maidstone Rose Show takes place. On Wednesday, the 29th, Rose Shows will be held at Farningham, Richmond (Surrey), Boston, and King's Lynn. On Thursday, the 30th, there will be Rose Shows at Canterbury, Eltham, and Winchester. There will be Orchid sales at Protheroe & Morris's rooms on June 24th and June 28th, and on June 30th Mr. G. R. Portal's plants will be sold at Deanfield, Henley-on-Thames.

THE WEATHER IN LONDON.—During the past week the weather has been somewhat unsettled and cool, but very low temperatures have not been registered. Rain fell heavily on the 19th inst., and there were occasional showers on the 20th. The 21st was fine on the whole, but a heavy shower fell in the evening. At the time of going to press the barometer is firm and the weather decidedly warmer, but rain threatens.

FROST IN JUNE.—The morning of the 14th inst. brought several degrees of frost in some districts, and much Rose foliage was browned in the London suburbs. Further out Begonias, just planted out, and Potatoes were badly cut. After what we went through earlier in the season this final stroke falls rather heavily.

THE WEATHER IN THE WEST.—LATE FROST.—The cold wave reached this part on Tuesday night, the 14th, and will long be remembered for the destruction wrought, especially in cottage and allotment gardens in low-lying parts. The damage was caused more by cutting wind than frost, only 2° being registered. In some parts Potatoes a foot high are cut to the ground, in others only a short distance off the tops are only slightly blackened. Even in the same plot one part is damaged and the other scarcely touched. It is the same with Runner Beans, one row killed and the next only slightly damaged. The effect on the fruit crop is not apparent yet. It was thinned by earlier frosts.—J. MILNE, *Camerton Court, Somerset*.

THE WEATHER AND GARDEN CROPS IN BEDFORDSHIRE.—On the 14th inst. the mercury of the thermometer fell to 33°, and on the 15th to 30°. The ground was quite white with frost. Happily little or no damage is noticeable here, but in the neighbourhood of Sandy and Bedford the market gardeners have suffered a good deal. In many cases Potatoes, Cucumbers, Vegetable Marrows, French and Runner Beans have been blackened and cut down. It is noticeable

in Potatoes that some varieties have suffered more than others, Beauty of Hebron has suffered most and Magnum Bonum the least.—G. R. ALLIS, *Old Warden*.

INTERNATIONAL HORTICULTURAL EXHIBITION.—We are requested to state that Messrs. Kelway & Son's exhibit of Delphiniums and other flowers at the Royal Botanic Society's Fête will, with fresh specimens, be arranged at Earl's Court this day (Thursday).

GAMMA MOTHS.—I notice just now a profusion of gamma moths, in gardens and fields about Gravesend, which means a number of caterpillars by-and-by I expect.—J. R. S. C.

ENFIELD HORTICULTURAL SOCIETY.—The Summer Show of this Society takes place on July 6th, and the Chrysanthemum Exhibition on November 8th and 9th. Schedules are now being issued.

THUNDERSTORMS AND VEGETATION.—From reports in Symons' "Monthly Meteorological Magazine" considerable damage appears to have been done to vegetation by thunderstorms on May 31st and June 1st.

SLUGS.—I observed Mr. Murphy's remarks respecting the scarcity of these pests. I attribute it to the continued dry weather here, and expect when wet weather arrives to see the slugs appear in fine form.—A. L., *Reading*.

GOLD MEDAL CARNATIONS.—In recognition of the meritorious exhibit of Souvenir de Malmaison Carnation at the International Horticultural Exhibition on the 27th ult., by Mr. T. H. Crasp, gardener to Lord Wimborne, Canford Manor, a gold medal has been awarded to Mr. Crasp by the Executive Committee.

COLEUS STANSTEAD BEAUTY.—Messrs. Laing & Son have a most distinct, and as many will consider attractive, Coleus under this name. It has crinkled foliage, pale yellow with green blotches, veined and edged with carmine, and margined with purple. Some may prefer the smooth-foliaged varieties, but this crinkled-leaved sort is a welcome change.

BLACK FLOWERS.—No encouragement ought to be given to such funereal-looking flowers as the black Delphinium, D. triste, and black Pansies. With constant difficulty being experienced to find room for all the bright and beautiful flowers that press their claims forward so powerfully, no space ought to be wasted on such gloomy things as these.—P.

SAXIFRAGA SARMENTOSA TRICOLOR SUPERBA.—A Journal representative noticed this beautiful variety of the well-known Mother of Thousands in Messrs. Laing & Son's nursery recently. The rich rosy magenta colouring is particularly marked in the young leaves, and runners rooted in small pots like Strawberries are delightful little objects. It is well worth growing in quantity.

WARWICK.—During the stay of the Prince of Wales and the Duke of York at Warwick Castle extensive decorations have been carried out, and will be continued throughout the week, as a large and distinguished company arrived yesterday (Wednesday). Pæonies, Marguerites, Poppies, Pyrethrums, and large numbers of Roses have all been used with marked effect for dinner-table decoration. On one occasion a special feature was the extensive use of Pansies and Violas, many of which proved to be exceedingly pretty when used for tracing and arranged in various other ways. In spite of several heavy showers on the opening day the number of visitors at the Royal Show exceeded all previous records, and the attendance through the week promises to be unusually large, which is, doubtless, in a great measure owing to the magnificent site, which is universally acknowledged to be the finest ever obtained for this great Show.

LAING'S BEGONIAS AT THE WORLD'S FAIR.—An American journal speaks about Mr. Laing and his Begonias as follows:—"Glad to know they are coming. Laing has got the stuff—there is no better. But he will have to exert himself most vigorously if he expects to have a walk over. We are not now dependent on Europe for Al tuberous-rooted Begonias, and Mr. Laing knows it. His son opened his eyes in amazement on a Long Island farm last autumn, when he stood in the midst of a field of 20,000 Begonias, of as good a strain as one might expect to find at Forest Hill. But send your best Begonias, Mr. Laing, for, as yet, they lead the world. And more than all, come yourself, John Laing. Come—see this broad land of liberty, whence shekels freely flow to thee. Come where old friends shall meet thee, and thousands new shall greet thee.—W. F."

— **ROUGH AND READY FRAMES.**—During the cold winds of the past spring Mr. Moorman has had recourse to a simple plan of increasing the amount of frame room at his disposal in Dulwich Park. He has procured some stout planks, such as are used in building operations, and fixed them on edge one above the other to the required depth, and thus provided spacious shelters, which have proved of great benefit to the plants.

— **SEEDLING VIOLAS.**—I have received from Dr. Stuart, Chirnside, a box of flowers of his lovely seedlings from Violetta, amongst which are several to be sent out in the autumn. They are of great beauty, and will be most welcome acquisitions. None of them was named, but I hope very shortly to be able, through the Journal, to give descriptions and names. This strain of Viola is remarkably fragrant, as sweet as any Violet, and preserves the true habit of the Viola.—W. DEAN.

— **DOUBLE IVY-LEAVED PELARGONIUMS.**—Exception has been taken to a remark I made to the effect that double Ivy-leaved Pelargoniums do not carry well. That is my experience, and, curiously enough, the very day the Journal was published, in which their utility as "travellers" is contended for, I had an empty returned which had been sent away on the Monday packed with flowers of a given colour, and among which some double Ivy-leaves were included, and many petals of which came back with the empty.—B.

— **GREEN FLY** has been very troublesome amongst Carnations' Roses, and Mrs. Sinkins Pinks this year. The latter has been so bad that I was afraid I should not have any flowers worth cutting, as the fly had got into the flowers, but at last I tried Calvert's carbolic soft-soap, using it at the rate of 6 ozs. to a 3 gallon can of water, and well syringing the plants. The effect was that the plants were all cleared of fly. I may add that I syringed the plants on two successive evenings. I have also found carbolic soft-soap good for mildew on Roses and other plants.—G. F., *Glendaragh Gardens, Teignmouth.*

— **PRESENTATION OF A FOUNTAIN.**—Mr. Steven, of Messrs. Steven Bros. & Co., 4, Upper Thames Street, London, E.C., manufacturers of hot-water apparatus and general ironfounders, has presented a handsome fountain, made at his ironworks in Glasgow, to the town of Ayr. It is of very handsome construction, with a large basin some 28 feet in diameter, and three cups, surmounted by a cone-shaped top, from which an additional spray is thrown. The water was recently turned on by Mr. Steven in the presence of the Provost, magistrates, and Council.

— **NARCISSUS POETICUS.**—Two years ago I wrote to you concerning the doubling of single Narcissi. Since then these and kindred flowers have become very popular. I have taken greater interest in them, especially in the many changes they are liable to. At one time I had a large surplus of single *N. poeticus*, now I have very few. Several clumps that were last year all single are this year in all stages of doubling, which with me has been the result of lifting and replanting about the time of flowering. I have one case of reversion this year from the double form to the single; it was originally single. The curiosity consists in the flower being larger, the petals more waxy in appearance, and the flower stalk being 2 feet 3 inches long.—W. T.

— **PROTECTING PEACH BUDS.**—Experiments for protecting the fruit buds of Peach trees from injury by cold during the winter have been made for several years at the Massachusetts Agricultural College, and for four years past in the early winter the roots of several of the trees have been loosened on the north and south sides and the trees laid over on the ground. In this way, if the roots are cut off during early summer, the growth will be forced into the roots on the east and west sides, and these will be simply twisted a little in the process of bending over. The trees are bent toward the south to avoid the direct rays of the sun on the trunk and main branches. In the first experiment the buds were injured by heat because the trees were covered too closely; after that they were covered with mats and other light material, and a large percentage of the buds were saved. This spring, while about 52 per cent. of the fruit buds were destroyed on unprotected trees, those which were protected show only 10 per cent. destroyed. Many of the trees treated in this way are more than ten years old, and they are easily set up in the spring, grow well and mature a crop. No covering should be put on the ground under the tree, as the moisture seems necessary to keep the buds in good condition, and if the land is in sod the trees should be sprayed with the Bordeaux mixture and with skim-milk and Paris green to protect them from field mice, which are very fond of them.—(*Garden and Forest.*)

— **BIRDS AND FRUIT.**—"Gartenflora" recommends the winter feeding of birds by fruit cultivators as a means of decreasing the ravages of insects on their trees. In many parts of Austria, it says, at the approach of winter, a circle of evergreen branches is formed by sticking their butts firmly in the earth. The ground within the circle is covered by boards, and then other branches are laid across, so as to form a light roof for the enclosure. Seeds, bread crumbs, &c., are scattered on the boards, and the birds, quickly finding their way to the food through the interstices of the evergreens, are protected against wind, snow, and the attacks of animals, and in the spring are ready to pay their debt by vigorous assaults upon the insects of the orchard.

— **SEEDLING HERBACEOUS PLANTS AT YORK.**—A small group of cut blooms of seedling Irises and an *Hemerocallis*, raised and sent by the Rev. G. Yeld, Clifton Cottage, York, were of peculiar interest to lovers of herbaceous plants. A seedling Iris named Sincerity was awarded a certificate for the greatly improved form of the flower as well as for its pleasing colour. It is a seedling from *pallida* and *Queen of May*. Another seedling, *Selina*, from *pallida* and *racemosa*, crossed with *spectabilis*, is of a rich violet purple colour. Other seedlings were also included. A beautiful *Hemerocallis* named *Apricot* is a seedling from *flava*, crossed with *fulva* probably, or *Middendorffia* possibly. It is deeper in colour than *flava*, with much broader sepals of good substance and fine form of the character of *Middendorffia*. It is a fine thing, and a certificate was awarded to it.

— **FREE GARDENERS' CONFERENCE.**—The National United Order of Free Gardeners recently held their annual meeting at Wednesbury, under the presidency of Grand Master Wilson, of Boldon. A procession and gala in celebration of the event was held in the town, and there were thousands of visitors. The Grand Master's address showed that during the year there had been 6353 members initiated, but 656 had died and 4592 had seceded from various causes. Including the juveniles and honorary members, there were now 57,676 members in the Order, and the funds were £147,000, an increase of £5000. He expressed the opinion that compulsory insurance was not yet sufficiently understood to be satisfactorily dealt with, but the friendly societies would not tolerate any State system which did not desire their co-operation and help. There was a generally expressed hope that during the year convalescent homes would be established for members of the Order.

— **ZAUSCHNERIA CALIFORNICA.**—In the *Journal of Horticulture* for February 4th, 1892, I see an article by "D., Deal," in which he speaks of our native plant, *Zauschneria californica*, as useless, because it will not bloom or spread under his care. Had he studied its habits more closely he would not have been disappointed. There is no better rock plant, and few are more beautiful. It grows in crevices of rocks with a very slight foothold. On the face of the rocks on the south side of the American River, in Placer County, California, the plant thrives. The bank is a perfect blaze of bloom in summer. The flowers are Fuchsia-like. Many of the lower plants are often covered with water, but this does not seem to hurt them. Do not make an outcast of this beautiful plant. With proper care it can be easily cultivated. It has bloomed with me in 3-inch pots. These remarks are from the pen of Mr. J. W. Dunlop, and appear in "Meehan's Monthly," the Editors of which endorse them cordially.

— **SALE OF THE YELLOW CALLA, HIGH PRICES.**—It will be remembered that exceptional interest was excited by the yellow flowered *Arum* exhibited under the name of *Calla Elliottiana* on its first appearance, the clear yellow flowers and marbled leaves being most distinct and attractive. Negotiations were conducted with several prominent nurserymen with a view to the purchase of the plant, but report says that the price asked was so high that no buyer could be found. Be that as it may, the yellow *Calla* remained in private until Friday the 17th inst., when the stock was offered for sale at Messrs. Protheroe & Morris's rooms. Although the amount realised by the original plant was absurdly low as compared with the price that rumour had put upon it when first offered, the returns realised were excellent. The plant alluded to brought 17 guineas, a second 16 guineas, a third 10 guineas, a fourth 9 guineas, a fifth 8 guineas, and others 6 guineas, 5½ guineas, 5 guineas, 4 guineas, and 3½ guineas. Reckoning roughly, the amount realised by the total sale must have been about £400. How this result compares with the anticipations of the owner cannot be said, but for a batch of *Callas* it is extraordinary. Doubtless we shall not have long to wait before the plant is fairly plentiful.

— WINTER IN SUMMER. — Mr. R. Saunders, The Gardens, Rendcomb Park, Cirencester, writes : — "I was astonished this morning (15th inst.) at finding quite a severe frost. There were 3° at 6 A.M. I could not say how much more previously, as the thermometer was not set. Potatoes are badly cut, and Scarlet Runners in some instances killed outright. Dwarf Beans seem to have stood it without injury. Dahlias are blackened badly, and Begonias have suffered; Heliotropes and Iresine are slightly injured. Luckily everything was dry or the consequences must have been most disastrous. We are situated right on the Cotswold Hills, so if we have come off badly I am afraid our neighbours in the valleys have fared worse. Such a frost on the 15th of June has, I should think, seldom been known." It is announced that hundreds of acres of Potatoes in the Fens of Lincolnshire and Cambridgeshire have been cut down by the frost. Mr. E. Molyneux states that serious injury was done to Potatoes and Kidney Beans in the neighbourhood of Winchester.

— ANOTHER VINE ENEMY.—Well would it be for the French Vine growers if the phylloxera were the claret drinker's only enemy. Unluckily, says a daily contemporary, the tiny cochylis is almost as great a scourge. The damage done by it last year to the Vines in the Gironde Department is estimated by some at no less than a million sterling, and it is thought that the damage caused by this noxious worm last year throughout France must have reached several millions. The efforts made during the last two years to stamp out its existence appear to have been unsuccessful, and the re-appearance of the "cochylis" during the present year seems only too probable. The "cochylis" worm passes the winter, as a rule, underneath the bark of the Vine or of the Vine props, moving in spring gradually into the Grapes, which, instead of attaining their maturity, thereupon dry up. Neither cold nor damp seems to have any effect in arresting or retarding its progress. The winter of 1890-91, which was one of the coldest experienced in that part of France, seems to have had quite a fine bracing effect on the cochylis's constitution.

— SHOW IN NOTTINGHAM.—In connection with the Nottinghamshire Horticultural and Botanical Society an exhibition of flowers and plants took place in the Arboretum Rooms, Arboretum Street, Nottingham. The Show was the most successful, both in quality and quantity, ever held under the auspices of the Society. There was a large variety of flowers staged. The exhibits reflected considerable credit on the exhibitors, being all of them splendid specimens. Mr. C. J. Mee of Wollaton exhibited a splendid collection of cut flowers, also a collection of Tomatoes, Apples, and Melons. Mr. T. B. Hallam's exhibit of flowers suitable for table decoration was very fine. A centre-piece for a table by Mr. G. Taylor was much admired, and elicited much well-merited praise. Mr. Hallam of Basford had a fine show of Cucumbers, Lettuce, and Rhubarb; a collection of outdoor vegetables and plants, including Stocks, Strawberries, and Cabbage, was very creditable to Mr. Baker of Old Basford, by whom they were exhibited. The awards were :—For twenty plants in pots not 6 inches in diameter, Mr. J. Meadows, Basford, 1; Mr. C. J. Mee, 2; Mr. S. Thacker, 3; Mr. T. Hallam, 4. For six plants in pots, not exceeding 10 inches in diameter, Mr. C. J. Mee, 1; Mr. S. Thacker, 2; Mr. J. Meadows, 3.

— EFFECT OF ELECTRIC LIGHT ON FLOWERS.—Electricity is to have a new employment in horticulture, says *Electricity*. It has been shown that Lettuce is particularly susceptible to the influence of the electric light, by means of which it can be grown for market in two-thirds the usual length of time. Other vegetables respond likewise in varying degrees. But everything depends upon the proper regulating of the light, and how to do that can be learned only by the careful study of the results produced under all conditions. The effect of the light being to hasten maturity, too much of it causes Lettuce to run to seed before the edible leaves are formed. The light is not employed as a substitute for sunlight. It is used merely in a supplementary manner. The greenhouse that has the sun in the daytime is illuminated at night by arc lamps, towards which the plants incline their leaves and flowers. It was supposed that vegetables required intervals of darkness for their health and development, just as animals need sleep, but it has been shown that, supplied with the rays of electric light, they will go on growing thriftily between sunset and daybreak. Opal globes diminish the intensity of the light. Under the full influence of the light the plants grow pale, run up quickly in sickly stalks, and soon die. It remains to be discovered exactly how much light is beneficial, and during what period of the development of the vegetables it ought to be applied. The influence of the electric light on the colour and productiveness of flowers has been shown to be extraordinary. Tulips exposed to the light

have deeper and richer tints, flowering more freely and developing longer stems and bigger leaves. Fuchsias bloom earlier under like conditions. Petunias bloom earlier also and more profusely, growing taller and more slender. In fact, there is every reason for believing that the electric light will be used very profitably in the future as an adjunct to forcing establishments for flowers and garden vegetables. One market gardener is employing it with a success which he reports as marvellous.

— LONDON FLOWER GIRLS.—The Duke and Duchess of Westminster and two of their daughters—Lady Margaret and Lady Helen Francis Grosvenor—recently visited Clerkenwell to open a floral bazaar in aid of the London Flower Girl Mission Guild, which was founded by Lord Shaftesbury some twenty-five years ago. Mr. J. A. Groom, Hon. Superintendent of the Institution, explained the objects of the work, remarking on the great increase in the number of London flower girls during the past thirty years. The present number was stated at 3000, while it is mentioned in one of the publications of the Mission that over £5000 is spent in London every day on cut flowers alone. The Mission includes a shelter for flower girls at Covent Garden, where a cheap breakfast is to be had, a brigade of girls who are trained in the art of artificial flower making, and an orphanage at Clacton. At the bazaar, artificial flowers were largely used in the decoration of the stalls, the central kiosk forming a kind of Maypole, with streamers of artificial flowers suspended from the ceiling. Each stall took its name from a particular flower, which was worn by the stallholders.

— EEL-WORMS AND FERNS.—Professor Halsted writes that he has observed during the past winter that eel-worms (nematoids) have been very destructive among young Ferns. The first leaves of Ferns are very small and delicate, and two or three worms are sufficient to destroy a plant, from which they pass on to the next victim. In one bed of young Ferns noticed the dead plants were separated from the living by a line as distinct as that between the burned and unburned portion of a meadow in early spring. These pests usually attack plants from the root, and probably at the outset have made their entrance into the Ferns from the soil, but they can also spread from leaf to leaf throughout all the plants in the bed. The soil on which the Fern spores are to be sown should be subjected to a high heat some time before that operation. This will destroy all nematoids in the soil, and after that lime water, sulphur, and other applications known to be injurious to the worms, but harmless to tender vegetation, should be used.—(*Garden and Forest*.)

RANUNCULUS LYALLI.

THE first specimen of this very remarkable plant, which may be described as the monarch of the genus, was found in Milford Sound on the west coast of the southern island of New Zealand by Dr. Lyall, when accompanying H.M.S. "Acheron" in the survey of 1847-9. It was again discovered in 1861 by Drs. Sinclair and Haast in the mountains of middle island, always in marshy places, and at elevations of 3000 to 4000 feet above sea level. In the Lake Ohon district it is found as high as 5000 to 6000 feet. There appear to be only two other species with peltate leaves, *R. Cooperi* and *R. Bauri*, the former of which is now, I believe, in cultivation, and though not equal to the giant Rockwood Lily here shown (fig. 81), it will be found both beautiful and interesting. *R. Lyalli*, introduced to cultivation several years ago, first flowered in the Royal Gardens at Kew, at Mr. Bartholomew's garden, Park House, Reading, and again in the open air at Kew, from which plant the drawing was made. I am told that the Kew plant has weathered the past two severe winters in the open air, from which it may be concluded that whatever may be its other dislikes, cold is not one of them. It will be clear to fortunate possessors of the Rockwood Lily that it is perfectly hardy; indeed it will be easier managed out of doors than in pots. It loves a free, moist, but not stagnant soil, where the drainage is free, and where it can send its strong succulent roots out of harm's way.

New Zealand growers advise planting *R. Lyalli* behind a north wall and this will no doubt answer well in the south. At Kew, however, the plants that have just flowered have a western exposure, catching the morning sun about ten o'clock, and losing it again a little after mid-day. It is a plant that loves moisture, and during the growing season should be watered copiously once or twice a day. In winter a covering of bracken or other loose dry material will be found beneficial. In its native home it gets covered with snow completely during the winter season, and in spring and early summer where the perpetual snow above its habitat is melting the ground is kept continually moist, and at the same time, as the

plants grow on the mountain sides, well drained. When strong and doing well it is an extremely beautiful and interesting plant. The leaves are often found as large as those of a good sized

The variety *aranecus* is said to have more numerous flowers, and besides the two species mentioned above, *R. Traversi* and *R. insignis* should prove of interest to the English cultivator. Raising



FIG. 81.—*RANUNCULUS LYALLI*.

Nelumbium, with great clusters of large pure white flowers, the stems from 2 to 3 feet high. It is a magnificent plant for a shady and moist spot on the rockery, or, as the New Zealand growers suggest, against a north wall.

the seeds of *R. Lyalli* appears to be the most difficult part of the whole business. These should be sown as soon as gathered or received in well drained boxes or pots placed in shade and covered with pieces of glass.—DAISY.

ROYAL HORTICULTURAL SOCIETY.

JUNE 21ST.

IN addition to the Exhibition of the National Rose Society on the above date there was a considerable number of exhibits before the Committees, so that the Drill Hall was well filled.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); Rev. W. Wilks, Dr. Hogg, and Messrs R. D. Blackmore, T. Francis Rivers, J. Cheal, T. J. Saltmarsh, W. Warren, T. G. Miles, A. Dean, G. Sage, J. Hudson, F. Q. Lane, H. Balderson, J. Smith, G. Whalley, Harrison Weir, and J. Wright.

Mr. W. Allen, The Gardens, Swallowfield Park, Reading, sent very fine looking Melons, the result of a cross between Meredith's Hybrid and William Tillery, but their quality was not such as to entitle them to any award. Mr. T. Bonsall, gardener to J. H. Kitson, Esq., Elmet Hall, Leeds, sent a Melon, a cross between Read's Scarlet and Eastnor Castle. The fruit was not ripe enough for the development of its quality, but it was regarded favourably, and some members of the Committee suggested that the variety might be sent again. A new Melon (Oxonian) was sent by Mr. S. Ely Joyce, Grove Gardens, Henley-on-Thames; it was not in good condition, being too soft, and was passed. Five very handsome oval shaped Melons, weighing 29 lbs. 5 ozs., were sent by Mr. C. Reynolds, The Gardens, Gunnersbury Park, but the quality by no means equalled their appearance, and no award was consequently made.

Mr. J. Lowe, The Nurseries, Uxbridge, sent fruits of a new Cucumber, Lowe's Advancer, the result of a cross between Lockie's Perfection and Telegraph. The fruits were excellent in form, with a good bloom, but not considered superior to well grown examples of existing varieties.

Mr. T. Laxton sent dishes of some of his new Strawberries—Scarlet Queen, fruits medium, of good flavour and dark in colour, and as early as Noble; Royal Sovereign, fruits of good size and colour, firm, and richly flavoured, early and productive (first-class certificate); and Sensation, very large, dark, but lacking in firmness and rich flavour.

Mr. T. Sharpe, Knowle Hill, Virginia Water, exhibited a large collection of Marguerite Strawberries, very fine fruits, and a small silver medal was recommended. Mr. G. Wythes, Syon House Gardens, sent dishes of the following varieties of Cherries:—Early Rivers, Frogmore Bigarreau, Governor Wood, Black Eagle, Elton, Belle d'Orleans, Bigarreau Napoléon, and Black Tartarian (a cultural commendation). A similar mark of recognition was also accorded him for a dish of Duke of Albany Peas; and Messrs. Robert Veitch & Son, Exeter, exhibited their new early Pea Exonian, which had been previously certificated. Mr. Miller sent from Ruxley Lodge a large basket of Mushrooms, grown on outside beds, and a cultural commendation was awarded. Mr. T. H. Crasp, Canford Manor, sent boxes of very good Peaches and Nectarines, unnamed, and apparently mixed (vote of thanks).

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair), Messrs. J. Laing, B. Wynne, H. Herbst, C. Bause, H. B. May, G. Phippen, C. Jeffries, W. Goldring, James Walker, Bennett Poë, C. E. Pearson, N. Davis, C. J. Salter, T. Baines, H. Turner, J. Fraser, G. Gordon, and G. Paul.

Messrs. James Veitch & Sons had a very interesting display of Pæonies and herbaceous plants, for which they were awarded a silver Banksian medal. Messrs. Kelway & Son had a splendid collection of double Pyrethrums, Pæonies, Delphiniums, and other flowers, and also received a silver Banksian medal. Messrs. G. Paul & Son received a silver Flora medal for a fine display of Pæonies, and they also had a brilliant collection of hardy flowers. Messrs. Paul & Son also sent a collection of Roses, which included plants and cut blooms of the Bourbon Rose Mrs. Paul, and single and other species and varieties. A bunch of a Hybrid Tea named Gustave Regis, included in this contribution, was adjudged an award of merit. It is a charming Rose, and is more fully described elsewhere. Mr. Chas. Turner had several Pelargoniums, Fuchsias, and Roses. Two of the former received awards, and are referred to below. Messrs. J. Laing & Sons sent a very beautiful mixed group, set up in their usual tasteful style, comprising greenhouse and foliage plants and Orchids. The beautiful old Begonia corallina was very noteworthy. It is a charming basket or wall plant. A silver Flora medal was awarded. Messrs. Barr & Son had an extensive display of hardy flowers and a rich collection of Pæonies, to which reference is made in an article on another page. A silver Banksian medal was awarded.

Mr. T. Whillans, Blenheim Gardens, exhibited a very distinct Tree Carnation named Lady Rosamond, heliotrope coloured, and very sweet. It is quite a new break in colour, but no award was made. Lord Wimborne, Canford Manor (gardener, Mr. Crasp), exhibited a splendid group of Souvenir de Malmaison Carnation, and received a silver-gilt Flora medal. *Carpenteria californica* was exhibited by the Rev. W. Wilks as cut from the wall of a verandah in the open air at Shirley without protection. The pure white flowers are extremely beautiful, and the shrub is worth growing extensively. P. Crowley, Esq., exhibited a cluster of Christmas Roses, marked "Seasonable Flowers!" Mr. H. J. Jones had a beautiful group of Pelargoniums, for which he received a silver Banksian medal. Mr. R. Dean had a beautiful display of border Pinks, and Messrs. J. Cheal & Sons a charming collection of Violas. Mr. B. Ladham also had an attractive collection of Pinks. Mr. Reynolds, Gunnersbury Park Gardens, sent a collection of Streptocarpus, and received a vote of thanks. The Pamilla Manufacturing Company exhibited art pottery.

In the competition for Pæonies, H. Berkeley James, Esq. (gardener, Mr. J. Gibson), was first, and Mr. T. H. Crasp, Canford Manor Gardens, second. A collection of beautiful hybrid Sweet Briars was shown by Lord

Penzance, Eashing Park (gardener, Mr. G. Baskett). This contribution comprises many varieties of sterling merit and justly deserved the silver Flora medal recommended. The blooms were most brilliant and much admired. Two varieties named Lucy Bertram (Sweet Briar × Souv. d'Auguste Rivière), and Alice Bridgenorth (Sweet Briar × Abel Grand) are described below. Other varieties conspicuous in this collection were Lucy Ashton, Meg Merrilies (very bright), and Diana Vernon, an exceedingly showy kind.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), Messrs. James O'Brien, S. Courtauld, T. B. Haywood, E. Hill, E. Handley, C. Pitcher, H. M. Pollett, H. Ballantine, J. Douglas, Henry Williams, and A. H. Smee.

The display of Orchids was not large, but comprised several exhibits of much interest. Messrs. Sander & Co. received a silver Flora medal for a small but very attractive and interesting group, containing, as usual, many novelties, several of which are referred to under certificates and awards below. Amongst the others were *Epidendrum Thayerianum*, *Dendrochilum filiforme*, *Cycnoches chlorochilum*, *Odontoglossum Harryanum*, *Angraecum O'Brienianum*, *Oncidium Schlegelianum*, and *Thunia Campbellae*. Messrs. Collins & Collins, Willesden, received a silver Banksian medal for a very attractive display, well arranged, but not otherwise calling for special comment.

Baron Schröder (gardener, Mr. Ballantine) sent *Lælio-Cattleya eximia*, a hybrid between *Lælia purpurata* and *Cattleya Warneri*. The large fringed lip is richly coloured with magenta carmine from the edge right into the throat, and the exterior of the tube is also deeply suffused. The sepals and petals are soft lavender suffused with rose. He also sent *Lælio-Cattleya Canhamæ*, *Lælia purpurata* × *Cattleya Mossiæ*, a grand hybrid that has been previously honoured. It is a handsomely built flower with rich lip colouring. Several other Orchid exhibits are referred to under certificates and awards.

CERTIFICATES AND AWARDS.

There was a very long list of these, and space only permits of a brief reference to each.

Cattleya princeps (F. Sander & Co.).—From Southern Brazil, very distinct and rich in colour. The sepals and petals are green at the base, but the greater portion is deeply suffused with rosy magenta. The side lobes of the lip are creamy in colour, and folded closely upon the column. The front lobe is flattened, the edge fimbriated, white, and the lip is thickly covered with magenta bosses (award of merit).

Cattleya Amesiae (F. Sander & Co.).—A beautiful white form, the petals very broad and charmingly fringed. The lip is very faintly tinted with rose, and the throat lined with yellow. A bold but attractive flower (award of merit).

Cattleya Empress Frederick (Baron Schröder).—A cross between C. Mossiæ and C. Dowiana, and the only plant in the country. The former is the seed parent. It is a magnificent form, the lip being most remarkable alike in size and colour. It is rich magenta-carmine with a golden throat, sepals and petals pure white. This is one of the most superb forms yet seen (first-class certificate).

Cattleya Warneri marmorata (J. T. Gabriel, Esq.).—As its name implies, this is a marbled form of C. Warneri. The sepals, the tube, and the fringed margin of the lip are blotched with crimson on a pale lavender ground. It is distinct, and not unattractive (award of merit).

Dendrobium Souvenir d'Alce (Hamar Bass, Esq.).—This was stated to have been introduced by Messrs. Sander & Co., and is an extremely pleasing form, having an upright panicle of small pure white pendent flowers, with a very faint tinge of lemon on the lip (award of merit).

Lælia purpurata, *The Dell variety* (Baron Schröder).—A distinct form. Sepals and petals soft rosy lavender, lip narrow, brownish purple, with light yellow throat.

Sobralia Lucasianum (C. J. Lucas, Esq.).—This is a grand form, the flowers being of large size. The lip is broad and somewhat flattened, soft rosy mauve in colour, the throat light yellow. The sepals and petals are white faintly suffused with rose (first-class certificate).

Cypripedium Telemaehus (J. Veitch & Sons).—This is a hybrid between C. Lawrenceanum and C. niveum. It follows the former. The dorsal sepal is green at the base, but towards the edges it is suffused with rose. The petals are broad, rose spotted with purple, the base green. The lip is dark purplish rose.

Oncidium lanceanum (E. H. Woodall, Esq.).—This is too well known to need description; the rich mauve lip is the most noteworthy feature of the form (award of merit).

Grammatophyllum Seegerianum (C. J. Lucas, Esq.).—This bore an arching peduncle quite 5 feet long, freely furnished with green, purple blotched flowers (award of merit).

Sweet Briar Lucy Bertram (Lord Penzance).—This is a charming variety, the result of a cross between the Sweet Briar and Souv. d'Auguste Rivière. The blooms are large, single, and of a brilliant purplish crimson colour. The foliage is very neat and sweet scented (award of merit).

Sweet Briar Alice Bridgenorth (Lord Penzance).—This is another hybrid of sterling merit. It is a cross between Sweet Briar and Abel Grand Rose. The blooms are a charming pink shade, and deliciously fragrant (award of merit).

Rose Gustave Regis (Messrs. G. Paul & Son).—This is a Hybrid Tea, with pointed buds, and delicate buff and tinted pink petals. The blooms are very fragrant, and altogether it is a most charming variety (award of merit).

Pæony Felix Crousse (G. Paul & Son).—Deep purplish crimson, large, full, and effective (award of merit).

Pæony Mlle. Rossau (G. Paul & Son).—A charming double white, with faint tints of rose (award of merit).

Pæony Madame Breon (P. Barr & Son).—A very large light flower, full, massive, and handsome, creamy white, with delicate rose suffusion (award of merit).

Pæony Lottie Collins (Kelway & Son).—A fine double, very rich crimson with purple suffusion, handsome in form, and very full (award of merit).

Pæony Grizzel Muir (Kelway & Son).—A large pure white double, very full and handsome (award of merit).

Pæony Van Dyck (G. Paul & Son).—A large and fragrant light rose, double variety, very brilliant in colour (award of merit).

Pæony Madame Loise (G. Paul & Son).—A light rosy crimson, double, medium size, distinct shade (award of merit).

Pæony Snowball (Barr & Son).—A magnificent double white, very large with broad white guard florets and very full in the centre (award of merit).

Pelargonium Ryecroft Surprise (Mr. H. J. Jones).—Ivy-leaved, brilliant salmon pink with large trusses, and a very free bloomer (award of merit).

Pelargonium Rosy Gem (C. Turner).—A very brilliantly coloured variety, light salmon pink, very free and bright (award of merit).

Pelargonium Souvenir (C. Turner).—A very large and brilliant Show variety; lower petals brilliant pink, upper ones pink with purple blotch (award of merit).

Pelargonium Fireball (C. Turner).—A dark free-flowering Show variety, the lower petals brilliant scarlet, the upper deep purple (award of merit).

Caladium Madame Edouard Pynaert (C. F. Bause).—Very rich in colour, the whole of the leaves being burnished rosy brown (award of merit).

Caladium Marguerite Gelinier (C. F. Bause).—A beautiful pale variety, the leaves dull rose veined with pink and margined with green (award of merit).

Carnation George Fry (J. Laing & Son).—A seedling tree variety raised by Mr. Fry, rich light crimson in colour, very sweet, free flowering, and not a bud burster (award of merit).

Tree Carnation Mrs. A. Hemsley (H. B. May).—Deep crimson, rather small in flower, but a free bloomer, not bursting the calyx (award of merit).

Cornus Kousa (J. Veitch & Sons).—A Japanese Cornus of great promise. The flowers are four-petalled, white, Trillium-like, and very sweet, the leaves oval-shaped and rich green (first-class certificate).

Adiantum macrophyllum album striatum (T. & J. Rogers).—In this variety the leaves are streaked with white. Some of the fronds are deeply suffused with crimson (award of merit).

Calla Pentlandi (R. White, Esq., Pentland House, Lee).—A beautiful and distinct yellow Calla, with a richer spathe than *C. Elliottiana*, and larger foliage. The latter is not spotted, but deep green. It is altogether a bolder plant than the other yellow Calla (first-class certificate).

Crinum brachynema (J. Smith, Mentmore).—A pure white form with short stamens, and evidently a free bloomer. The flowers are six-petalled, and when expanded are extremely beautiful. It is a Bombay plant, and is worthy of wide cultivation (first-class certificate).

Tritoma caulescens (J. Veitch & Sons).—This handsome species is fairly well known. The lower portion of the spike is light yellow, the upper brick red. It is a distinct, early, and handsome form (first-class certificate).

Strawberry Royal Sovereign (T. Laxton).—Fruit of good size and colour, firm and richly flavoured; early and productive (first-class certificate).

The subject of the afternoon lecture was "The Management of Trees in Parks and Gardens," by Mr. W. T. Thiselton Dyer, C.M.G., Director of Kew Gardens. A more lucid, instructive, practical, and in every respect admirable lecture has never been given at any previous meeting, and it is only to be regretted that time prevented the lecturer dealing with the other points that he evidently had in reserve. It is, however, satisfactory to learn that the lecture will be amplified for publication in the Society's journal. Some comments will be made on it next week.

Previous to its delivery Veitch Memorial medals were presented to Mr. W. Watson of Kew, and Mr. Heal of Messrs. James Veitch & Sons, by Sir Trevor Lawrence.

THE GREAT YORK GALA AND HORTICULTURAL EXHIBITION.

THE thirty-fourth annual Exhibition took place on the 15th, 16th, and 17th inst., in fine weather, and there was a large attendance each day.

Stove and greenhouse plants are always well represented here, and the battle lies invariably between Mr. Letts, gardener to the Earl of Zetland, Aske, near Richmond, and Mr. Cypher of Cheltenham; Mr. Letts generally being first, as on this occasion. In the class for ten stove and greenhouse plants in flower (Orchids excluded) and six ornamental plants Mr. Letts was first, in this group being grand specimens of *Azalea Cedo Nulli*, *Aphelexis macrantha purpurea*, *Dipladenia amabilis*, *D. boliviensis* (superbly flowered), and a very fine *Erica depressa*. Second, Mr. Cypher, who had fine specimens of *Pimblea diosmæflora*, *Erica tricolor Wilsoni*, *Erica ventricosa magnifica*, *Anthurium Schertzerianum*, and *Dracæna indivisa* in his collection.

Third, Mr. J. F. Mould, Pewsey, Wilts. For the six stove and greenhouse plant prizes some capital specimens were staged. First, Mr. F. Nicholas, gardener to the Earl of Zetland, at Upleatham, with *Erica depressa multiflora*, *Ixora Williamsi*, *Dracophyllum gracile*, *Aphelexis macrantha purpurea*, *Bougainvillea glabra*, and another. Second, Mr. Mould, in whose lot was a very fine *Dracophyllum gracile*. It will not be out of place here to suggest to the Committee the abolition of the old time-honoured staging in the large central tent for stove and greenhouse plants, and another year go in for a bold effective arrangement of the plants on the ground, simply using tripods or some other means for elevating any plants requiring it. Too much of the staging and the pots is now seen, and at many of our great exhibitions, such as Shrewsbury and Wolverhampton, all this staging is avoided. A grand tent of stove and greenhouse plants, such as is rarely seen, could easily be arranged, for the plants are always forthcoming at York. Some excellent specimens of *Azaleas* were staged by Mr. Letts and Messrs. Jackson & Co. of Bedale, also *Crotons*, and a large tent was devoted to ornamental plants.

In the two classes for groups the display fell short of previous years. Both in the larger as well as the smaller group, Mr. M'Intyre, gardener to Mrs. Gurney Pease, was first with admirable arrangements. Mr. W. H. Simpson, nurseryman, Selby, was second for the large group; and Mr. John Currey, Salisbury, third, and second for the smaller group. Cape Heaths were very good and plentiful, Mr. Mould taking the lead. Exotic and hardy Ferns were numerous, and a number of fine specimens were exhibited, Mrs. Gurney Pease being first for six and three exotic Ferns. There was a good display of *Gloxinias*, but the *Tuberons Begonias* were not up to the mark, the best plants being of inferior sorts, and the best sorts of inferior culture. One lot of six, chiefly doubles, were staged by a railway signalman in Lincolnshire, and deserved a prize, as they had been grown under difficulties, but the plants were not large enough to come into the competition.

Orchids were a distinct feature. Messrs. Shuttleworth, Carder & Co. of Bradford occupied considerable space with a large group, in which were fine plants of *Oncidium macranthum*; and amongst other novelties, *Lælia grandis tenebrosa*, *Cypripedium Curtisii*, and the lovely white lipped *Odontoglossum vexillarium Cobbi*. In the class for ten Orchids and six also, the first prizes went to Mr. Cypher, amongst them being fine examples of *Anguloa Clowesi*, *Cattleya Sanderiana*, *Dendrobium staurosum*, *D. infundibulum*, and *Oncidium macranthum*. C. B. Faber, Esq., Harrogate (gardener, Mr. Townsend), was second in each class with good specimens. Mr. Wright, gardener to D. Wilson, Esq., Cottingham, was first for four Orchids; and Mr. Nicholas of Upleatham won the first prize for specimen Orchids with a magnificent *Calanthe veratrifolia* in fine condition.

Pelargoniums are always a very marked feature at York, and at no other exhibition in the kingdom can such a magnificent display be seen; but there was a falling off this year in quantity as well as quality, some of the veteran exhibition plants having been discarded for younger ones. Probably next year's display will balance the matter. Still some grand specimens were staged on this occasion. In the class for twelve plants of show varieties Mr. Eastwood, gardener to Mrs. Tetley, Leeds, who has been the champion prizetaker for so many years, was again first with a fine lot, his old antagonist, Mr. McIntosh, gardener to J. H. Hingston, Esq., being a good second, and Miss Steward third. For six *Pelargoniums* Miss Steward was an excellent first, and Mr. Eastwood a close second. In the class for twelve Zonals Mr. Eastwood was first in his usual style, showing grand masses of colour, and plants of great size and symmetry; and Mr. Pybus, florist, Monkton Moor, came in a good second. In the classes for six and three Zonals respectively Mr. Eastwood was first, and Miss Steward a good second. Mr. Eastwood was also first in each class for eight and four double Zonals with large specimens, admirably grown. There was good competition in all these classes. Ivy-leaved *Pelargoniums* are wonderfully fine at York, this year finer than ever. There were grand well-grown specimens from 2½ to 3½ feet high, and as much through, informally trained generally, and well flowered. Mr. H. Pybus's first prize six were a grand lot, and Mr. G. Cottam, jun., was a very close second, but some of his plants were not quite sufficiently in bloom. Two finer lots of Ivy-leaved were never seen. The class for three was also well filled. A fine lot of *Fuchsias* were staged, well-grown specimens, some wanting more time to develop the blooms, but all of great merit.

Roses in pots were numerous, and in most cases showed improved cultivation, still there are some veterans which should now be discarded. Messrs. Jackson & Co., nurserymen, Bedale, were first in most classes with vigorous younger plants, with good foliage and blooms; Mr. H. Pybus and Miss Steward being also successful exhibitors. The display of cut Roses with such a season was a surprise, three lots of seventy-two blooms, not less than thirty-six varieties being staged. First, Messrs. Harkness & Sons, Bedale; second, Mr. George Mount, Canterbury; third, Mr. Henry May, Bedale. For forty-eight blooms, dissimilar.—First, Mr. H. May; second, Mr. George Mount; third, Messrs. Harkness & Sons. For thirty-six blooms, dissimilar, first, Mr. May; second, Messrs. Harkness & Sons; third, Messrs. Jackson & Co.; fourth, Mr. G. Mount. For twenty-four distinct blooms, as well as for eighteen, Mr. May was first, Messrs. Harkness & Sons second, and in the latter class Mr. Mount third. These exhibitors were also to the front in other classes for Roses, and the amateur classes were also well filled.

Some superb bouquets were staged, Messrs. Perkins & Sons, Coventry, being first in the three classes; Mr. A. Booty, Harrogate, was second for some handsome bouquets, but which had too many colours in them.

Epergnes and baskets of flowers, collections of cut stove and greenhouse flowers, Pyrethrums and hardy herbaceous blooms were all of high quality, and the prizes keenly competed for.

The fruit generally was good. In the collection of ten varieties, Mr. McIndoe, gardener to Sir Joseph Pease, Bart., M.P., was first; and Mr. R. Parker, gardener to John Corbett, Esq., M.P., second, running very close in quality, both lots being good. The prizes for a collection of six varieties went to the same growers. For four varieties, Mr. McIndoe was first; Mr. Leadbetter, gardener to A. Wilson, Esq., Tranby Croft, second; Mr. James Tullett, gardener to Lord Barnard, Raby Castle, third; and Mr. Lonsdale, gardener to R. H. Appleton, Esq., Eaglescliffe, fourth. Pine Apples.—First, Mr. Charles Slade, gardener to the Duke of Newcastle, with a handsome Smooth-leaved Cayenne; second, Mr. McIndoe; third, Earl Fortescue. In the class for three bunches of Black Hamburgh Grapes there were seven exhibitors. Mr. Allsopp, gardener to Lord Hotham, was again first with well-finished bunches; A. Milnthorpe, Esq., second; Mr. McIndoe third; and Mr. Edmonds, gardener to the Duke of St. Albans, third. For three bunches of white Grapes, Mr. Allsopp was again first, as he often is at York, with three medium-sized, highly coloured bunches of Buckland Sweetwater; second, Mr. McIndoe; third, Sir Hy. Meysey Thompson, Bart.; fourth, A. Milnthorpe, Esq. A good lot of well-coloured Peaches and Nectarines were staged, and a large number of Melons, in the three classes. Mr. Edmonds was first for Read's Scarlet Flesh in that class; Mr. McIndoe first in the green flesh class, with High Cross Hybrid; and Mr. Parker of Impney first with Hero of Locking in the white flesh class.

Pansies were in great quantities, and a large proportion of the blooms very fine indeed, but we may deal with these in a separate article shortly. Messrs. Smellie, Irvine, and Campbell were the leading exhibitors from Scotland, and Mr. Bailey from Sunderland. Messrs. Dobbie and Co., Rothesay, staged a large collection of Violas well arranged, two of which, new ones not yet sent out, were awarded certificates—namely, Prince of Orange, deeper in colour than Bullion, and Rob Roy, rich gold with bright brownish red top petals and small flowers. This firm also had a quantity of Fancy Pansy and other flowers, an excellent display all round.

One of the most beautiful features of the Exhibition was the superb group of Malmaison Carnations in variety staged by Mr. Jennings, gardener to Leopold de Rothschild, Esq., Ascott, and to which a handsome gold medal was awarded as a special extra prize. It was a lovely group, there being an abundance of fine flowers and the plants well grown, the whole fringed with Ferns. The Lord Mayor of York was so pleased with the group that at the luncheon he announced his intention of giving special prizes for Carnations next year. Messrs. Birkenhead had an extensive collection of choice Ferns, for which they are celebrated. Messrs. Cutbush & Son, London, set up a good lot of plants, and other honorary exhibits were present.

The weather on the first day was very fine; 1200 more were admitted than on any other first day; but the second and third days were most unsettled, and a great deal of rain fell; still on the second day close upon 24,000 persons attended.



ANOTHER BOOK ON CHRYSANTHEMUMS.*

It is in no way surprising that another work on Chrysanthemums should now see the light; in fact, it is strong testimony to the comprehensiveness of the work by another Hampshire grower that so long a period has elapsed since its publication without a second one appearing. Considering the immense popularity of Chrysanthemums, and the comparative scarcity of works pertaining to them, it would not have been strange if several had appeared ere now. We must not be understood to be complaining of their absence, for there is no certainty that they would have been good, and one or two thoroughly useful works are worth a host of inferior productions. The Fareham trio step into the literary arena with all the weight of an exceptionally successful exhibition career. For many seasons past they have held a very prominent position on the show table, and during the past two or three seasons have been almost invincible. Probably no more magnificent blooms have ever been staged than the best examples that they have placed before the public, and in the face of these high evidences of their skill and knowledge in Chrysanthemum culture, it would be idle to question the authority with which they speak on the subject that they have taken in hand.

In introducing their book the authors state that owing to complaints from their friends and customers they have decided to make the present their last season of exhibiting for prizes. They have evidently found what other tradesmen have done before, that to sell plants and then beat the buyers of them into the bargain is a double pleasure which falls to the lot of few. Perhaps, on reflection, it is not unnatural that

a man who buys a horsewhip should object to being thrashed with another that the dealer has reserved for his own special delectation. The introductory remarks need no special comment, but a mild protest may be raised against the catalogue element introduced in the last paragraph, wherein the public are thanked for past patronage, and respectfully solicited to continue it. Messrs. Drover and Adams should have remembered that they were writing a book, not preparing a list.

To turn to the character of the work we find a course of chapters on practical points, especially in reference to culture for exhibition. The first, "Starting Growing for Exhibition," may be passed, for although it contains a useful hint on the desirability of correct nomenclature, this is supplemented by a panegyric on the business methods of the authors that would have been far better said elsewhere than in a cultural work, especially when it is one of their own preparation. The treatment of plants for cuttings, soil for cuttings, and striking are fully treated upon. In considering the question of the number of plants to grow for exhibition a warning is given against cultivating a greater number of plants than can have proper attention. It is suggested that those who wish to compete in the large classes should grow 500 to 600 plants, and that 100 are quite enough for amateurs who exhibit chiefly in classes for twelve. It may be interesting to give what, in the authors' opinion, are the best forty-eight Japanese and the best thirty-six incurred in order of merit, but this is a point on which it would not be surprising to find diverse opinions expressed. Japanese:—Vivian Morel, Avalanche, Edwin Molyneux, Stanstead White, †Mrs. C. Wheeler, M. Bernard, W. H. Lincoln, Etoile de Lyon, Sunflower, Alberic Lunden, Florence Davis, Mdle. Marie Hoste, †Violet Rose, †Mrs. F. Jameson, †W. W. Coles, †Pelican, †Mrs. A. Hardy, Mrs. E. W. Clarke, †Beauty of Castlehill, Miss A. Hartzhorn, Gloire du Rocher, William Tricker, Beauty of Castlewood, †M. E. A. Carrière, †Gloriosum, †Boule d'Or, Condor, †Jeanne Délaux, Louis Boehmer, R. C. Kingston, Cleopatre, Mr. A. H. Neve, †Madame C. Audiguer, †Mr. Ralph Brocklebank, Puritan, Sarah Owen, Madame J. Laing, Stanstead Surprise, Madame Lacroix, †Mrs. J. Clarke, M. J. M. Pigny, †Val d'Andorre, Carew Underwood, †Meg Merrilies, †Lady Lawrence, Pink Lacroix, †Madame Baco, Baronne de Prailly. Thirty-six incurred:—Lord A'cester, Empress of India, John Lambert, Golden Empress of India, Queen of England, †Alfred Salter, †John Doughty, Mrs. S. Coleman, Princess of Wales, Violet Tomlin, Miss M. A. Haggas, Lord Wolseley, Jeanne d'Arc, Prince Alfred, Nil Desperandum, †Mrs. Heales, †Mrs. W. Shipman, Lady Dorothy, Empress Eugénie, Lady Hardinge, M. Darrier, Princess of Teck, Mrs. N. Davis, Lady Carey, Refulgence, †John Salter, †Alfred Lyne, †Novelty, Beauty, Princess Beatrice, †Hero of Stoke Newington, Charles Gibson, Nonpareil, †M. R. Bahuant, Lord Eversley, †Robert Cannell. Those marked thus † are not so thoroughly reliable as the remainder.

The various cultural stages, such as the treatment of young plants, potting, summer treatment, feeding, taking the buds, housing, ventilating, shading and damping, are dealt with in a plain and practical manner, being apparently a simple record of successful practice. Special hints are given on the varieties selected as the best, and these cannot fail to be helpful to many; indeed, the chapters are amongst the most useful in the book. The culture of Chrysanthemums for decorative purposes is not dealt with as would be expected in a complete work on Chrysanthemum-growing, nor are varieties chosen for that purpose. In this respect the book compares unfavourably with Mr. Molyneux's. It is an exhibitor's handbook, and would be serviceable to all who grow for the shows, but less so for general growers. Should a second edition ever be called for the authors would do well to reconsider their previous decision, and place the book in the hands of a competent man for revision. The literary style wants polishing up, and errors in the spelling of the names correcting.

NATIONAL ROSE SOCIETY.

EXHIBITION OF TEAS AND NOISETTES.

THE National Rose Society's first Show of the year took place at the Drill Hall, Westminster, on Tuesday, June 21st, in conjunction with the periodical meeting of the Royal Horticultural Society. The entries in some classes were not very numerous, neither were the exhibits up to their usual standard, some of the blooms being very rough. The names of the prizewinners and the principal varieties shown are embodied in the following notes.

The best twenty-four single trusses, not less than twelve varieties, were staged by Mr. Alfred Tate, Downside, Leatherhead. The blooms were remarkable for their freshness and size, although perhaps many of them were not quite so perfect in form as on previous occasions. The varieties shown were Comtesse de Nadaillac, Niphotos, Souvenir d'un Ami, Etoile de Lyon, Innocente Pirola, Madame de Watteville, Souvenir d'Elise Vardon, Alba Rosea, Madame Willermoz, Madame Cusin, The Bride, Catherine Mermet, Marie Van Houtte, and Souvenir de S. A. Prince. This contribution included the best Tea Rose in the Show, a splendid bloom of Comtesse de Nadaillac, for which the silver medal was awarded. The second prize went to Alex. Hill Gray, Esq., Beaulieu, Newbridge Hill, Bath, for a box of small blooms. There were only two competitors in this class. For twelve trusses, not less than nine varieties, the Rev. F. R. Burnside, Birch Vicarage, Hereford, gained the first prize. The blooms in this stand were neat and fresh. Niphotos, Prince of Wales, Madame Cusin, Madame Bravy, Cleopatra, Souvenir d'Elise Vardon, Rubens, Souvenir d'un Ami, Caroline Kuster, and Comtesse Panisse were the varieties staged. The Rev. H. Berners, Harkstead

* "Chrysanthemums and their Growth," by W. & G. Drover and Nephew Adam; published by the authors at their nurseries, Fareham, Hants.

Rectory, Ipswich, was awarded second prize, and W. H. Fowler, Esq., Claremount, Taunton, third. In both stands the blooms were fresh. In the class for six single trusses of not less than four varieties there were seven entries, and the competition was somewhat keen. The first prize went to the Rev. J. Pemberton, Havering-atte-Bower, for a stand which comprised Caroline Kuster, Maréchal Niel, Jules Finger, The Bride, and Souvenir d'un Ami. The Rev. B. Biron, Lympne Vicarage, Hythe, and R. Tucker, Esq., Swanley Junction, Kent, were second and third respectively with meritorious stands. For six single trusses of one variety the Rev. F. S. Taylor, Littleton Vicarage, Evesham, was first with well coloured blooms of Maréchal Niel, while the second prize went to the Rev. F. R. Burnside for six small but splendidly coloured blooms of Anna Ollivier. Mr. R. L. Knight, Bocking, Sittingbourne, was awarded third prize for a stand of Maréchal Niels. There were seven entries in this class. The first prize for six distinct varieties, three trusses each, was gained by Alex. Hill Gray, Esq., who staged a meritorious collection. The varieties included in this stand were The Bride, Catherine Mermet, Maréchal Niel, Comtesse de Nadaillac, Madame Bravy, and Marie Van Houtte. This was the only entry in this class.

There were five entries in the class provided for the decorative arrangement of Teas and Noisettes, vases or baskets being used at the discretion of the exhibitor. Mrs. Henry B. Biron, Lympne Vicarage, was awarded first prize for a tastefully arranged basket of blooms, the second award going to Miss A. Bloxam, Eltham Court, Eltham, and the third to Mrs. O. G. Orpen, West Bergholt, Colchester. The last-named exhibitor showed samples of table decoration with Roses, but which were of a dull and heavy nature.

As a rule the best blooms are to be found in the open classes, but on the present occasion such was hardly the case. The first prize for twenty-four distinct varieties, single trusses, went to Mr. Frank Cant, Braiswick Nursery, Colchester, for a fine collection. The blooms, however, were smaller than usual, and not so well coloured as generally seen. The varieties were Catherine Mermet, Niphetos, Maréchal Niel, Marie Van Houtte, Madame de Watteville, Souvenir de Paul Neyron, Comtesse de Nadaillac, The Bride, Caroline Kuster, Jules Finger, Hon. Edith Gifford, Madame Lambard, Souvenir de S. A. Prince, Souvenir d'un Ami, Madame Hoste, Souvenir d'Elise, Princess Beatrice, Francisca Kruger, Madame Margottin, Jean Ducher, Rubens, Cleopatra, Innocente Pirola, and Madame Welch. Mr. Alex. Hill Gray was placed second for a fair collection, and Messrs. D. Prior & Son, Myland Nurseries, Colchester, third. Mr. Frank Cant was also first for twelve distinct varieties, three trusses of each, the varieties shown being The Bride, Comtesse de Nadaillac, Souvenir de Paul Neyron, Maréchal Niel, Caroline Kuster, Madame de Watteville, Rubens, Francisca Kruger, Souvenir d'un Ami, Madame Cusin, Hon. Edith Gifford, and Catherine Mermet. The second and third prizes were awarded to Messrs. Prior & Sons and G. Mount, Exotic and Rose Nurseries, Canterbury, respectively. For eighteen bunches "naturally grown" Mr. Frank Cant was the only competitor, showing a box of charming blooms, the best of which were Catherine Mermet, Devoniensis, Madame Falcot, The Bride, Hon. Edith Gifford, and W. A. Richardson. The best twelve single trusses of Maréchal Niel in the open classes were shown by Mr. R. L. Knight, Bocking, Sittingbourne, the blooms being large and well coloured. Mr. A. Hill Gray and Mr. Frank Cant were second and third in this class. Messrs. D. Prior & Sons and Mr. Frank Cant were awarded equal prizes for twelve single trusses of any Tea or Noisette other than Maréchal Niel, both exhibitors showing boxes of Marie Van Houtte. Mr. A. Hill Gray was adjudged third prize for a box of Anna Ollivier.



HARDY FRUIT GARDEN.

NETTING FRUIT.—Sweet Cherries, Gooseberries, Strawberries, also Red and White Currants are tempting to birds when the fruit is rapidly changing colour. They soon discover that the ripening of the fruit is near, and keep a strict look-out for the early and most luscious-looking specimens, which they disfigure immediately the pulp becomes tasty to their palates. It is at this time that protection from their depredations is necessary, or as soon as advanced fruits assume the first tinge of colour. By simply laying lengths of fish netting over Strawberry beds, letting the netting rest on the foliage, a considerable amount of fruit is secured against attack; but a better plan is to drive short stakes into the ground on each side of a bed or quarter of Strawberries, attaching strong tar twine over the plants at distances sufficient to carry the netting well above the foliage and fruit. Ripening Gooseberries, Currants, and Raspberries can be protected in a similar manner. Where birds are not very troublesome, but insect pests are, it is better to avoid netting the trees, as the visits of a few birds will in many cases prove beneficial to the trees by a considerable riddance of caterpillars and grubs in return for a small share of fruit. Cherries when ripe prove very attractive to birds. Many of the best varieties are grown on walls, where they can be easily protected by attaching the nets to the wall coping, from which they can be suspended quite clear of the fruit if

desirable. This can be done by securing the base of the nets to a few light stakes placed at suitable distances from the wall to carry the nets free from the top downwards.

NAILING AND TYING YOUNG GROWTHS.—The young shoots of Peaches, Nectarines, Apricots, Plums, and Cherries on walls are now making rapid growth, rendering the operation of tying or nailing in frequently necessary. If delayed too long many shoots become deformed, twisted, or too firm to bend to the desired positions easily; they also hang about and shade others to an injurious extent. Nail in strong shoots more closely than weak ones, though these must be inclined to the positions they are ultimately intended to furnish. Allow in all case the extremities a certain amount of freedom, as clean free growth



FIG. 82.—CYPRIPEDIUM ALICE. (See p. 470.)

cannot be made when too stiffly trained. Extension shoots for increasing the size of trees must be duly secured in the right position and direction. If disbudding has been properly attended to few shoots will require removing now, but any seen to be superfluous should be boldly cut away, retaining no more than are really necessary, and those of a moderately vigorous character only, not gross and sappy growths, which ought to be discarded. Morello Cherries require a considerable quantity of young shoots retaining, as they can be trained more thickly together than is allowable on most fruit trees. Some of the superfluous wood on Apricots, Plums, and dessert Cherries not wanted for filling up space may be shortened to four or five leaves for forming spurs. They do well on this dual bearing system if neither be overdone, which would crowd the tree with wood and foliage.

CLEANSING FRUIT TREES.—At this period the work of maintaining fruit trees in a clean, healthy condition, especially on walls, is very great. Aphides, maggots, and caterpillars vie with each other in rendering trees unsightly and preventing the clean, vigorous growth so desirable to have. All enemies of whatsoever kind must be forthwith removed or the trees will suffer serious injury. Summer pruning, by removing the points of shoots which insects frequently attack, is the means of destroying many. Black, brown, and blue aphides colonise in the points of growing shoots, causing a stunted growth with curled and discoloured leaves. Many shoots intended for filling vacancies are often severely attacked by aphides, and should be dipped in an insecticide strong enough to kill the pests without injuring the shoots. Softsoap and tobacco water is a favourite remedy when the insects cannot be reached by other means consequent on the curling of the leaves. When they can

be easily seen a dusting of dry tobacco powder over them is a certain destroyer, applying at nights and syringing off next morning. If still living after these applications something bitter must be used in addition. Quassia chips solution is alone an effective insecticide, but used in conjunction with softsoap it proves more effective. To make the quassia chip solution dissolve half a pound of chips in boiling water, two gallons, letting the decoction stand a whole day, then strain and use. The bitter properties of the chips are imparted to the shoots, which are rendered distasteful to those pests which survive the dipping or spraying. A quarter of a pound of softsoap added to the mixture while hot improves its destructive powers. Rubbing the infested shoots when wet to disturb the insects or brushing them with a soft brush aids materially in their destruction. The regular use of a syringe or powerful garden engine serves to prevent the increase of insects, while encouraging free, clean growth. The instrument should be worked so as to reach the under sides of the leaves as well as being directed from every available point. The operation is best performed about four o'clock in the afternoon on warm sunny days, using water that has been warmed by the air and sun, or at least made slightly tepid.

LAYERING STRAWBERRIES.—To have good crops of fruit from the first year it is necessary to obtain strong plants for placing out on well prepared ground at the end of July or the beginning of August. One method of rooting runners readily is to secure them on the surface of the soil in 3-inch pots plunged in the ground to the rim, filled with loamy soil containing at least half well-decayed manure, which retains moisture longer than soil alone. Plunging the pots also prevents evaporation. Secure each runner with a peg or stone; water freely until moderately well rooted, when each plant may be detached from its parent, removing the pots to a moist base of ashes, and stand them closely together. Pieces of turf about 3 inches square form also an admirable rooting medium for early runners, securing them to the turf as soon as rootlets appear at the base. Less water is required by these methods than by rooting in pots on the surface of the soil, where moisture soon evaporates in hot weather.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Forced Trees.*—When the earliest varieties are continuously forced to ripen their fruits late in April or early in May, and the second-early or standard forcing sorts to perfect their crops in late May or early in June, a great strain is put upon the energies of the trees, as they have to make their growth during the early spring months and mature it in early summer. Over-maturity of the buds is a great drawback in the continued early forcing of these fruits, and the labour of attending to them in watering and syringing during the summer is considerable under fixed roofs. Peaches and Nectarines are not in particular demand until the sun has passed the spring equinox, for until that time there is no reliance to be placed on the amount of sunshine, and colourless Peaches and Nectarines are not favourably received. By growing the very early varieties in pots fruit can be had from the middle to the end of April, and the trees can be placed outdoors at the end of June or early in July, always before the buds become very prominent; where, plunged in ashes, they are less exacting for water and syringing than when continued under glass. The buds also are less liable to over-development or to cast them during the rest period. It is necessary, however, to keep them well supplied with water and the foliage clean and healthy by occasional syringings, and, if needed, the application of an insecticide. The trees should be top-dressed, or shifted into larger pots when necessary, before the leaves fall, and they will then form fresh roots at once, which is essential to the proper support of the blossoms and the swelling of the young fruit.

The trees should remain outdoors plunged over the rims of the pot in ashes, until the time arrives for starting them at the beginning of January to have ripe fruit by or soon after the middle of April. Such is quick work and not always safe, because the weather is often very severe and sometimes sunless for weeks together in the early part of the year. Under such conditions it is safer to allow the trees more time, either by introducing them early in December and bringing them on very gently, or not subjecting them to hard forcing in severe sunless weather. By the first a margin is allowed for severe periods, when the trees need only be kept in steady progress, and any loss of time can be made up when the external conditions are favourable, and advancement by sun heat is very much better than driving the trees in cold, dull weather. In the second case the fruit will ripen a few weeks later, but it will be finer and better flavoured than it would otherwise be, whilst the trees have not their energies so over-taxed as to be fruitless another year. The best Peaches for very early forcing are Alexander or Waterloo, which are much alike, and very often the one is substituted for the other, but Waterloo is the better coloured, heavier, and higher flavoured fruit of the two. Early Beatrice, Early Louise, and Early Rivers afford good successions, as well as variety and more quality, the two latter being light coloured. Early Albert and Early Leopold are capital setters, and the fruit is good. Of Nectarines Advance is the earliest, and, though not a "taking" fruit, has a very good flavour, and Lord Napier affords a good succession. The advantage of the pot system of growing Peaches and Nectarines is not carried out to the extent it deserves, they being as eligible for very early forcing as the very early forcing of Vines in pots, and the fruits are acceptable through giving variety to and enlarging the usefulness of desserts.

Early forced trees must now have plenty of air, ventilating the house to the fullest extent after all the fruit is gathered, removing, if possible, the roof lights about midsummer or before the end of the

month, or if the roof lights are not moveable, in addition to full ventilation the border should be frequently damped and duly watered, so that no check is given likely to induce the premature ripening of the wood and foliage. Keep the latter free from red spider by syringing occasionally, and if necessary apply an insecticide, as it is of the greatest importance that the foliage be kept healthy, and that it ripen naturally. Laterals encourage root action, but they must be stopped so as to prevent overcrowding, otherwise some lateral extension is desirable as a safeguard against the wood and foliage maturing too early. All shoots that have borne fruit, and which are no longer required, should be cut away to the growths originated from their base for next year's bearing, and any superfluous wood be cut out, alike to make space for those which are left, and allow of the free admission of light and air, also for the free action of water to cleanse the foliage from insect pests and dust.

Houses with the Fruit Ripening.—The trees started early in February have the fruit advanced for ripening, and must be kept dry. With a view to prolong the season of fruit fire heat may be discontinued, unless the weather is unusually cold, as it has been lately, and air admitted freely by day and night, maintaining a good, but not excessive, moisture at the roots to compensate for the lessened moisture in the atmosphere consequent on the fruit ripening. Where it is not wished to retard the fruit maintain a night temperature of 60° to 65°, and 70° to 75° by day; free ventilation will enable the crop to swell freely and develop good flavoured fruit, allowing a rise of 10° to 15° from sun heat. Keep water from the fruit, but the floors and other available surfaces should be damped so as to afford a certain amount of atmospheric moisture for the benefit of the foliage. Water at the roots must be given both to the inside and outside border, and a light mulching of rather short lumpy material will lessen the necessity for it and encourage surface roots.

Trees Swelling the Fruit.—In houses that were started in March, or where the fruit is taking the last swelling after stoning, syringe vigorously to keep down red spider, but merely wetting the trees is no use, as it does not dislodge the pest, so that the mites remain and increase amazingly after the syringing is discontinued, impairing the quality of the fruit, and disastrously affecting the foliage, causing it to fall prematurely, whilst the buds for future bearing are imperfect. If the trees need support supply liquid manure, or water through a mulching of short manure, sprinkling a handful of superphosphate to a square yard before watering. Admit air early and in plenty with the rising temperature, and to insure the fruit swelling to a large size close early with abundance of atmospheric moisture, allowing the heat to rise to 85° or 90° or more afterwards. Turn the fruit with its apex to the light, and draw the leaves aside or shorten them, so as to admit light and air to the fruit, and thereby secure its even ripening. Keep the shoots well but not too tightly tied down, and pinch laterals back to the lowest leaf, thinning out the growths where crowded, and remove superfluous shoots.

Gathering Peaches.—Great care is necessary in removing the fruit. The least pressure makes a mark and spoils its appearance. A piece of wadding should be held in the hand and the fruit removed by gentle pressure, then laid carefully in a padded shallow basket. The fruit intended for packing should be gathered before it is dead ripe, and this is a matter requiring some judgment. If gathered too soon the fruit shrivels and has a sour or insipid flavour, therefore it must be full sized and coloured with the ripening tint to about half the extent of the fruit, then it will be in prime condition in about twenty-four to forty-eight hours. Dead ripe fruits are somewhat mawkish. This can be prevented by gathering it as soon as it parts freely from the trees. Allowing it to fall is a bad practice, but it is a good plan to fix some netting a short distance from the trees and loop it to form pockets, so preventing the fruits damaging each other by contact. Morning is the best time to gather the fruit, and it should be placed in a cool room to cool and mature before being sent to table. In bright weather the trees should be looked over in the evening as well as in the morning for the removal of the ripe fruit.

Late Houses.—The fruit should be thinned to the quantity required for the crop, or a few more may be left than will be required to allow for casualties in stoning. Syringe morning and afternoon in fine weather, but avoid syringing on dull days and on mornings when moisture has been condensed and hangs on the margins of vigorous trees in the early morning. Admit air freely and early. Mulch inside and outside borders with short manure and supply water abundantly. Shoots not required for next year's crop, and those not needed for furnishing the trees, should be removed. Keep laterals closely pinched, and cut away gross shoots. The shoots on young trees should be left about 15 inches apart for next year's bearing, and if they are disposed to elongate beyond 18 inches they may be pinched to 12 or 15 inches, stopping the laterals at the first leaf, but extensions or main shoots should be allowed to grow their full length provided they are evenly balanced and there is room. Avoid laying-in the growths too thickly; the branches should be a foot apart, and these should be as evenly balanced as possible.

MELONS.—*Houses and Pits Cleared of Fruit.*—When the plants are healthy, and not infested with red spider, they may be reserved for a second crop, in which case growths should have been retained and encouraged in the latter stages of the first crop, and a good set of fruit will have been secured in these whilst the structures were kept drier for the fruit ripening. The old growths in this case should be cut clean away, but not all at once, as that would give a check, reserving the best

of the growth, and any cuts that bleed should be dried with quicklime. Remove a little of the surface soil, and supply some lumpy loam. Soak with tepid water, and follow at once with rather thick tepid liquid manure. Mulch with horse droppings, spread previously in a shed, and turned over two or three times before using for the Melons. They are best given a little and often rather than as a heavy mulching all at once. If kept moist the roots will soon spread in the loam. Thin the fruit, apportioning it to the vigour of the plants; half a dozen per plant is a maximum crop, and overcropping is fatal to quality. Allow a fair extension of the fresh growths, especially if the plants have to be grown on before fruit can be had, as not all the varieties are amenable to the continuous system of cropping, and in that case it will be necessary to secure a good growth and then seek a good set by a drier atmosphere.

Replanting in Houses, Pits, and Frames.—Where the plants are not in a condition to bear second crops clear them out at once, removing the soil. If the heat be supplied by fermenting materials remove a portion of it and add some fresh, mixing it with the fresher portions of the old, which will revive the bottom heat sufficiently to give the young plants a start. Cleanse the house or structure thoroughly, success greatly depending on a good start. Plant on hillocks or ridges; a couple of barrowloads of soil will grow a large plant. Rather strong loam three parts, one part horse droppings, and one part old mortar rubbish, mixed and rammed firm, will grow Melons well. When warmed through plant the Melons. Shade from bright sun for a few days, ventilate early and freely, closing early with a moist atmosphere.

Plants Setting the Fruit.—With a sturdy short-jointed growth, and the growths not too thick, Melons set freely at this time of year, but air should be admitted so as to keep the flowers dry and the atmosphere genial. Insects visit the flowers and by pollen transference effect fertilisation. In moist weather, however, Melons do not set freely in frames; in that case apply good linings, and admit air freely, ventilating a little at night so as to prevent the deposition of moisture on the blossoms, as to set the pollen must be dry and the stigmas not destroyed by moisture. Keep the foliage fairly thin, for without light and air a good set need not be expected, yet a free use of the knife is not desirable whilst the fruit is setting. Afford water only to prevent flagging and keep it from the foliage.

Plants Swelling their Crops.—When the fruit is the size of a hen's egg add fresh soil to the ridges or hillocks after a good watering. Syringe plants in houses at closing time, and damp well down in the morning and in the evenings of hot days. Afford liquid manure copiously, always weak and tepid, or sprinkle a little sup rphosphate on the surface and wash it in. Supply supports to the fruit in good time, placing slates under those in pits or frames. Keep the foliage fairly thin, not allowing a large amount to be made, and afterwards have to reduce it in quantity, for that gives a severe check, and may result in gumming. Ventilate at 75°, keep through the day at 80° to 90° with sun, and close so as to run up to 95° or 100°, with plenty of atmospheric moisture. In dull weather a little ventilation without lowering the temperature prevents the foliage becoming soft and unable to bear sun after such periods, and a little about 6 P.M. on days when the houses have been closed early, will allow the temperature to fall gradually and any vitiated air to escape. As the fruit approaches ripening reduce the water at the roots, but not to the extent of causing the foliage to flag, admitting a little air constantly, and withholding water from the fruit. A gentle warmth in the pipes or linings to frames, with a little air constantly, is the best safeguard against cracked fruit, which is mostly a consequence of a moist atmosphere at night, or in a dull moist period following hot weather.

THE BEE-KEEPER.

THE HALLAMSHIRE QUEENS.

EVER since the controversy between yourself and "Hallamshire Bee-keeper" on the one hand, and the Editors of the *British Bee Journal* on the other, reached what I may call its acute stage by the threat of proceedings for libel, my love of fair play and justice all round often tempted me to send you an account of my experience with the Hallamshire queens.

When the Editors of the *Bee Journal* offered to publish any reports that reached them of these queens I wrote them a short account of my experience of them, but instead of publishing, as offered, I received a note from one of the Editors, declining to publish anything that had reference to Mr. J. Hewitt. After that I decided to wait until I had a chance of seeing how the bees came out in the spring before saying any more about them.

With your permission I will now give my experience, which commenced in the autumn of 1890 by the purchase of one queen; not a very fair test you may say, but still she did so well the next spring, her progeny being first in the supers, and storing more honey than any of my other stocks, that I decided to get all I could last year from the same source, having in all about twenty, and I am pleased to tell you they are all giving the greatest satisfaction, every stock being strong and in first rate working order.

As there was some doubt in my mind about the Punic (being sickened of foreigners by my experience of Italians and Carniolans) I did not get many of them, but have two stocks that would gladden the heart of any enthusiastic bee-keeper; and the best of it is, although so very strong, they make no attempt to swarm, working merrily away in the supers, which they occupied fully ten days before my stocks here were ready. My lad has repeatedly come in with the news that they were about to swarm, but in going to look I was able to point out to him that it was simply the excitement caused by the rush of workers in and out and the quantity of young bees marking the entrance in the middle of day.

You will not be surprised after this when I tell you I mean to go in for some more of them; in fact, they are so good that I should like all bee-keepers to know about them, that they may get some from the same place. I bought queens from another breeder last year, but with one or two exceptions they are not to be compared to the Hallamshire queens, which are the best I have been able to procure up to now; in fact, owing to the scarcity of early forage and our exposed position, being on a hill, I was never able to get my bees ready for the first honey flow until I had the Hallamshire queens to work with.—W. H. LEY, *Easton, Stamford.*

PUNIC BEES AND MR. T. W. COWAN.

IN the *B. B. J.* for June 16th, page 229, the Editors say, "None of these bees are now being imported into this country, and as it is more than twelve months since any have been sent over . . . we very much doubt if there is any bee-keeper in this country who has a pure queen, and if there happens to be such a queen she must be pretty aged."

All queens imported last year were young ones—i.e., reared in 1891. Now, according to Mr. Cowan, a queen is at her best during her second year. None of the queens imported last year are more than fifteen months old, and if this means "pretty aged" for queens, I do not know what an "aged" queen is.

Another fact. There are quite a number of stocks both in this country and in America headed with imported queens, and if anyone will pay the price I can fill an order by return of post for twenty imported queens, to say nothing of pure mated home-reared ones.

Another fact. I have imported queens of this race since twelve months ago, in fact I have imported over thirty queens since the time stated "any have been sent over."

"Imported" queens are being advertised and offered for sale at the present time, and have been all the season; and the reason they are not advertised in Mr. Cowan's papers is because when I sent him the advertisement, to stand all the season, and the money to pay for it, both were returned simply "declined." This fact is of more weight than any argument.

Punic bees are taking with a vengeance. They are now in nearly every county, and every post brings in flattering reports. They were swarming a month before the natives, and filling supers long before any others. I met a clergyman to-day—the Rev. George Shipton of Brampton, near Chesterfield. He said his Punic had filled their sections, but unfortunately the weather changed before they got them all sealed over. He has tried nearly all races, and now he is going in for Punic, and I can name many more like him. They will be imported as wanted, and I intend to keep up their supply, as undoubtedly they are the bees of the future. Mr. Cowan may deter many from trying them for a time, but they will eventually prevail, and opposition stimulates inquiry. He says he has come back from Tunis, and "that, although he made the most careful investigations, he failed to find any of the so-called Punic bees." Quite likely. It will be remembered that Mr. Cowan carefully investigated the *June Record* for a paragraph now historical, and failed to find it, in the same manner as he has failed to find the Punic bees; but I found both.—A HALLAMSHIRE BEE-KEEPER.

SWARMS OF BEES OR NUCLEI BY POST.

AT the end of February I received a visit from the chief clerk of the Sheffield Post Office respecting my custom of sending bees by post. He said that someone had been "complaining" about my being allowed to send bees by post, and wanted the law enforced against me, therefore the practice must cease. I subsequently learned—no matter how—that the person who had been complaining had not failed to state he was chairman of one of the associations which are supposed to benefit bee-keepers, and that would naturally favour the complaint being entertained.

I have had a long correspondence with the Post Office with a view of getting them to allow the public to send queen bees by

post, and have had the kind services of our esteemed central Member of Parliament (Col. Howard Vincent) to assist me and interview the Postmaster General. What I have secured for everyone, though not all I asked for, is a most valuable and important concession, and cannot fail to be of immense value to bee-keepers.

While queen bees are absurdly still to be excluded from the letter post in suitable packages, live bees are to be allowed by parcel post; there is no limit to numbers or size of package so long as they are within the ordinary parcels limit. Of course now bees are recognised as legal matter by parcel post compensation can be claimed for loss in transit, &c.

By 47 and 48 Vic., chap. lxxvi., sec. 4, any person sending a postal packet which encloses any living creature, or articles of a noxious or dangerous nature, is liable to twelve months hard labour or a fine of £10, even if the packet is stopped, or delivered at its destination.

By a Treasury warrant of April 2nd, 1886, Article 54, says, "There shall not be posted, or conveyed, or delivered by post, any postal packet, consisting of or containing, except with the special permission of the Postmaster General, any living creature." It is under this warrant, that the Postmaster General is allowing live bees to pass by parcel post, but understand, it does not extend to any living creatures.

Thanks to my would-be friend, all my queens will go by letter post at 1d. each for postage, while others must go by parcel post at 3d. How and why I am doing this is a personal matter between myself and the Post Office which I cannot at present explain, but whilst some will not like this my friends and customers no doubt will. It is often the unexpected that happens. Other papers will, perhaps, circulate this information for the benefit of their readers.—JOHN HEWITT, *Cambridge Street, Sheffield.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Abnormal Lime Leaves (*G. J. J.*).—The tree has been attacked by the gall mite, referred to on page 464 last week.

Vine Leaves Rusted (*W. T.*).—The dark specks appear to have resulted from an extravasation of sap, which has dried on the leaves, and the slightly ruptured tissues are also discoloured. We should not close the house quite so soon on sunny afternoons, and should leave a little top ventilation all night. If few of the leaves are worse than the large one sent no material harm will be done to the Vines.

Quick Growing Wall Plants (*L. J.*).—If planted in rich soil the Virginian Creeper would cover the north side of the villa in the woods as quickly as anything, but the growths do not cling. Those of *Ampelopsis Veitchii* do most persistently, and produce a beautiful surface of green in summer on a north aspect. The growth, however, is not quite so rapid as in *Ampelopsis hederacea*. If you require an evergreen, plant well rooted Irish Ivy, preferably from pots, in well prepared soil, and it will some cover the wall. Roses, such as the Crimson Amadis, Bennett's Seedling, Ruga, Aimée Vibert, and Gloire de Dijon, succeed admirably on north aspects, a reasonable distance from trees.

Peculiar Foxglove (*J. B. S.*).—The spike of Foxglove which you have sent, and in which there is a large terminal campanulate flower, presents a feature that is familiar to us. A similar one was illustrated in the Journal of August 6th, 1891, which you may like to see. The publisher would forward a copy in return for 3½d. in stamps if you have not one to refer to. The occurrence is abnormal, but not very uncommon.

The Onion Fly and Maggots (*J. W. P.*).—When the maggots take possession of the plants, burying themselves in them, the time has passed for remedies to be really effectual. The maggots may be prevented by rendering the plants distasteful to the egg-depositing fly. This we have seen done by frequent sprinklings of ammoniacal water from gas works, diluted with six times its volume of pure water. We have also found a wineglassful of petroleum in 3 gallons of soapsuds, constantly agitated during use, have a similar effect. Both the applica-

tions named are fertilisers. They should be applied on the very first symptoms of the attack. Covering the ground with spent hops or lawn mowings has been found of service in obstructing the movements of the maggots. It is only by early action, however, that the crops can in many cases be saved.

Tomato Roots Diseased (*X. Y. Z.*).—The nodosities on the roots are caused by bacteria or microscopic organisms, which nitrify organic matter, forming nitrates. These small knots have no deleterious effect on the plants other than to stunt their growth, and in result are a direct gain of nitrogen in the soil, which is available for future crops that are not nitrogen gatherers but nitrogen consumers. Other nodules are caused by Eelworm (*Tylenchus devastatrix*), and there is abundant evidence of these in the larger of the knobs or warts on the roots. The best application that can be given such soil and plants is a combination of lime, potash, and soda, but nitrate of soda and nitrate of potash should be carefully avoided. Apply lime in phosphate form, and potash in sulphate. The plants will obtain sufficient phosphoric acid and ammonia from the phosphate, and there will be ample soda supplied with the sulphate of potash, so that there is no occasion to apply it. We advise your trying the following mixture:—Superphosphate (dissolved bones) five parts, and sulphate of potash three parts; mix, and apply at the rate of 6 lbs. per square rod, or 4 ozs. per square yard, pointing in lightly, then giving water freely. Repeat at intervals of about three or four weeks. When the plants recover, as we expect they will in a short time, through the fresh roots excited by the phosphate, and more growth is wanted, you may use sulphate of ammonia along with the superphosphate and potash—namely, superphosphate four parts, sulphate of ammonia three parts, sulphate of potash two parts; mix, and apply 4 ozs. per square yard. The Eelworms have probably been introduced with stable or farmyard manure or turfy loam, as these pests may pass the digestive canal of animals, remain dormant in stubble, and be introduced with turf.

Blight on Vines in Madeira (*J. Y. J.*).—The bunches of Grapes are infested with the downy mildew, brown rot, and grey rot, common terms in America for the Grape *Peronospora*, *P. viticola*. It attacks the leaves, young wood, flowers, and fruit. It usually first appears in the form of greenish yellow or brownish spots on the upper surface of the leaves, while on the lower side corresponding parts are covered with a frost-like growth. As the disease progresses the frost-like patches may disappear, leaving only the brown leaf. Young wood and flowers are affected in much the same way, but owing to their structure the downy or frost-like stage is more pronounced. This stage of the disease is known in America (and it is common in some parts of South Europe) as the "downy mildew." Its effect on the incipient fruit is to turn it brown or black and literally plaster the berries together. It is rarely, however, that this disease, except in first attacks, appears alone, and where it is associated with any of the other maladies that infest Vines as powdery mildew, black rot, and anthracnose, one treatment will answer for all. It is no uncommon thing to find downy mildew, black, rot, and anthracnose all working together. One of the cheapest and most effectual remedies for downy mildew and black rot is ammoniacal solution of copper carbonate—namely, 3 ozs. copper carbonate (precipitated) dissolved in 1 quart of ammonia and diluted with 22 gallons of water. A careful watch should be kept on the Vines, and at the first sign of the disease applications with the ammoniacal carbonate of copper should begin and be repeated at intervals of twelve to fifteen days until the disease is overcome. The solution should be applied with a spraying apparatus, such as a knapsack pump, coating every part of the Vines with a thin film of moisture. Care should be taken to spray early, and repeat as required. Remember that the treatment is wholly preventive. It is found that spraying the wood with a simple solution of copper sulphate, 1 lb. to 25 gallons of water in spring after the Vines have been pruned and before the buds begin to swell, is useful as a preventive. Treatment with the ammoniacal carbonate of copper solution may follow when the leaves are one-third grown, and then at intervals of twelve to fifteen days. Bordeaux mixture is the only remedy that has given any beneficial results for anthracnose, and, as it may follow in your case, we mention it so that you may apply it if necessary. A formula for making a 2 per cent. Bordeaux mixture is given in the last number of the *Journal* in reply to "G. J. D." on Fig disease; but Bordeaux mixture has the property of rendering the Grapes in some cases unsaleable, and must be prepared with fresh lime according to the instructions. Mr. Tait, a celebrated port wine merchant at Oporto, has preserved his Vines against a fungoid scourge by the use of Messrs. Tait and Buchanan's anti-blight, which is a powder easily applied with a bellows, and does not prove injurious to the foliage or Grapes. It is equally efficacious against mildews of the oidium class, but those readily yield to sulphur, especially in a warm climate, or to sprayings with bisulphide of calcium. Messrs. Barr & Son, King Street, Covent Garden, London, are agents for the anti-blight.

Labour Required for Garden (*Mrs. W.*).—There is far too little labour to keep the place in order, and to have the kitchen garden in proper cultural condition would need the whole time of the gardener. But there is a great difference in men and in management. We have had one man keep a kitchen garden of 2 acres in better order, and grow more useful produce in regular succession, than two men with extra help, simply because the one had energy and brains, and the others were more concerned about affairs outside the garden than in it. Most places nowadays are underhanded, and it becomes a question with gardeners to so work as to economise labour. It is astonishing how well some gardeners adapt themselves to the new

order of things, and keep the gardens under their charge in a satisfactory state, actually growing more and better produce with, in many cases, half the hands. It is done by good management, the avoidance of fancies, and proceeding on utilitarian lines—that is, those of the market gardener, who must work so as to derive most profit at the least expenditure of capital and labour. The great evil in your case and in most others is the “helping man,” for such are often hindrances rather than helps, causing annoyance by having something else to do when wanted in the garden; in fact, they generally contrive to spend as much of their time as possible out of it. They have no interest in the garden, and do not render the aid they very well might were they so disposed. All are not alike; some “odd men” will do as much work in a garden as two or three ordinary labourers. Many, as you say, are coachman and gardener; everything, in fact, about the place requiring “man” work. We consider that the kitchen garden and the houses are as much as any one man with an interest in his work and the confidence and encouraging words of his, or her, employer could do well. That would occupy him early and late. By all means concentrate the gardener on the garden work. This will show what he is made of, and instead of the garden being uncropped and the fruit trees not fruitful, or the houses flowerless, you will find a supply of flowers, fruit and vegetables forthcoming in season. Then give the cowman the lawn, the drive, and the beds of common flowers to attend to, under the gardener’s supervision, but let it be distinctly understood that you expect the cowman to do this part of the work, and that you take a lively interest in its being neatly and promptly done. Thus you may get both to take an interest in their work and to feel that one is not doing more than the other, and that both have the reward of their labour. The semi-independent men are very little use otherwise. We have practised the plan we point out and found it to answer admirably, but the other plan, the one you are now following, is probably the worst possible, for there is more time spent in haggling about doing the work than would serve to do it twice over. If the lawn is large you might let some part of it go for hay. This we have done many times, and there is a great saving in labour and often profit. The thing is to keep the principal parts trim and let the other have a park-like woodland appearance. Such improves many short-handed places, indeed many places have far too much lawn and walks, and are devoid of the pleasant aspect given by fields and woodlands, which greatly improve old-fashioned domains.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists’ flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*R. C.*)—4, *Inula viscosa*. (*J. M. T.*)—The plant is not, we think, *Mandevilla suaveolens*, and we are not sure what it is. There was a delay in the post, and the spray did not arrive in good condition though well packed. Can you send another specimen? (*J. C.*)—1, *Adiantum Capillus-Veneris* Mairisi; 2, *Pteris umbrosa*; 3, *Asplenium viviparum*; 4, Cannot be identified without fructification, send it again when bearing spores. As to culture you cannot do better than continue your present treatment, as the specimens indicate excellently grown plants.

COVENT GARDEN MARKET.—JUNE 22ND.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, Tasmanian, per case	6	0 to 8	Oranges, per 100	4	0 to 9
Grapes, New, per lb. ..	2	0	Peaches, per dozen ..	4	0
Lemons, ease	1	0	St. Michael Pines, each ..	3	0
			Strawberries, per lb. ..	1	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Beans, Kidney, per lb. ..	0	9 to 1	Mustard and Cress, punnet ..	0	2 to 0
Beet, Red, dozen	1	0	Onions, bunch	0	3
Carrots, bunch	0	4	Parsley, dozen bunches ..	2	0
Cauliflowers, dozen ..	2	0	Parsnips, dozen	1	0
Celery, bundle	1	0	Potatoes, per cwt. ..	2	0
Coleworts, dozen bunches	2	0	Salsafy, bundle	1	0
Cucumbers, dozen	2	6	Scorzonera, bundle ..	1	6
Endive, dozen	1	3	Seakale, per basket ..	0	0
Herbs, bunch	0	3	Shallots, per lb.	0	3
Leeks, bunch	0	2	Spinach, bushel	3	0
Lettuce, dozen	0	0	Tomatoes, per lb. ..	0	6
Mushrooms, punnet ..	1	6	Turnips, bunch	0	0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (golden) dozen	6	0 to 12	Lobelia, per dozen	3	0 to 6
Arum Lilies, per dozen ..	6	0	Lycopodiums, per dozen ..	3	0
Azalea, per plant	2	0	Marguerite Daisy, dozen ..	6	0
Begonia, per dozen	6	0	Mignonette, per dozen ..	4	0
Calceolarias, per dozen ..	4	0	Musk, per dozen	2	0
Cupressus, large plants, each	2	0	Myrtles, dozen	6	0
Dracæna terminalis, dozen	24	0	Palms, in var., each ..	1	0
“ viridis, dozen	12	0	“ (specimens)	21	0
Erica various, per dozen ..	12	0	Pelargoniums, scarlet, doz.	2	6
Euonymus, var., dozen ..	6	0	“ per dozen	8	0
Evergreens, in var., dozen	6	0	Rhodanthes, per dozen ..	6	0
Ferns, in variety, dozen ..	4	0	Saxifraga pyramidalis ..	1	6
“ (small) per hundred ..	8	0	Spiræa, per dozen	8	0
Ficus elastica, each	1	6	Trailing plants (various),		
Foliage plants, var., each ..	2	0	per dozen	3	0
Fuchsia, per dozen	4	0	Tropeolum or Nasturtiums		
Genista, per dozen	6	0	per dozen	4	0
Geraniums, Ivy	4	0			

Bedding Plants in variety in pots and in boxes.

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	2	0 to 4	Pæonies, dozen blooms ..	0	6 to 1
Bouvardias, bunch	0	6	Pansies, dozen bunches ..	1	0
Carnations, 12 blooms ..	0	6	Pelargoniums, 12 bunches	6	0
Carnations, Malmaison, 12			“ scarlet, 12 bunches	4	0
blooms	2	0	Pinks, dozen bunches ..	2	0
Carnations, dozen bunches	6	0	Polyanthus, dozen bunches	1	0
Cornflower, dozen bunches	2	0	Poppies (various), dozen		
Eschscholtzia, doz. bunches	2	0	bunches	1	6
Eucharis, dozen	2	6	Primula (double) 12 sprays	0	6
Fuchsias, per bunch	0	6	Ranunculus, dozen bunches	3	0
Gardenias, per dozen ..	2	0	Roses (indoor), dozen ..	0	9
Lilium longiflorum 12			“ (outdoor), doz. bunch.	4	0
blooms	2	6	“ Red, per doz. blooms..	1	0
Lilium (various) dozen			“ Tea, white, dozen ..	1	0
blooms	1	0	“ Yellow, dozen	2	0
Maidenhair Fern, dozen			Spiræa, dozen bunches ..	4	0
bunches	4	0	Sweet Sultan, doz. bunches	4	0
Marguerites, 12 bunches ..	2	0	Tuberoses, 12 blooms ..	0	4
Mignonette, 12 bunches ..	2	0	White Lilæe (French) per		
Myosotis or Forget-me-not,			bunch	4	0
dozen bunches	2	0	Wallflowers, dozen bunches	2	0
Orchids, per dozen blooms	2	0			



POTATO DISEASE.

AN announcement of the discovery of a remedy for the Potato disease, and of its successful application in France and Belgium, rightly induced the Board of Agriculture to take action in the matter, and to initiate experiments, which were carried out last year through the agency of the Royal Agricultural Society. The test was a severe one, the cold wet summer being altogether favourable to the spread of this disease, which in ordinary seasons usually makes its appearance during the showery weather which so often occurs in July. The experiments were carried out in Devon, Chester, Lincoln, Kent, Bedford, and Carmarthen, so that the trial was sufficiently comprehensive as regards locality to show enough of what is possible in our climate as a basis for future action. This is a point of especial importance to bear in mind in connection with the matter. Results must not be taken as being at all conclusive; the experiments were merely tentative, as all experiments must be—a sort of feeling the way to ascertain the possibility of such an application of theory to practice as would eventually result in the acquisition of knowledge so clear, and results so satisfactory, as would serve for general guidance.

Gladly do we record a degree of success last year which fully justifies other and more extensive trials now. The mixture used consisted of 20 lbs. of sulphate of copper (blue vitriol), and 10 lbs. of quicklime to 100 gallons of water. The sulphate of copper was suspended in a bag in cold water and so dissolved, the lime being dissolved in other water, and then poured through a fine sieve into the other solution, the sieve being used to keep out stones or any undissolved matter. The mixture was kept stirred while the lime was added. The mixture was applied to one set of plots as a preventive early in July before any trace of disease was visible, and again before the end of the month while the foliage was still quite healthy. In Kent and Bedford it was used a third time after the disease appeared. On another set of plots a single dressing of 100 gallons per acre was applied after the disease was noticed. With the exception of Cheshire, where shrivelled foliage followed the application of the mixture, the result was a gain at every station. There was no appreciable check to the disease in Cheshire, and the experiments were practically a failure in that county. In Lincolnshire the preventive treatment caused a reduction in the quantity of diseased tubers from 1, 2, to 0.6 per cent. In Kent the reduction was from 6.5 per cent. to 1.6 per cent. under the preventive treatment, and to 1.7 per cent. under the curative plan. In Bedford the result was even more remarkable, being under prevention a reduction of diseased tubers from 12 to 0.5 per

cent., and under curative treatment from 12 to 5·5, and what is even more important is the fact of the gains in sound tubers being much greater than the reductions in the weight of diseased ones. This was the case generally except in Cheshire, where the shrivelled foliage greatly diminished the crop. It appears very clear that the mixture was at fault in that county, which shows that no reliance can be placed upon the results of a single set of experiments. Taking four counties the following table shows what was the

GAIN IN SOUND TUBERS PER ACRE.

Stations.	Treatment.	Gain.			Cost of Dressing.			Value of Gain.			Nett Value of Gain.		
		ton cwt. lb.			£ s. d.			£ s. d.			£ s. d.		
Devon...	Preventive...	0	6	56	0	16	3	1	2	9	0	6	6
	Curative.....	0	17	95	0	8	6	3	2	5	2	13	11
Lincoln	Preventive only.....	1	1	32	0	17	0	3	3	10	2	6	10
	Preventive...	3	18	0	1	5	6	13	13	0	12	7	6
Kent ...	Curative.....	2	10	0	0	8	6	8	15	0	8	6	6
	Preventive...	1	12	96	1	4	0	4	18	7	3	14	7
Bedford	Curative.....	1	7	48	0	8	6	4	2	9	3	13	9

The gains have been rightly regarded as substantial, though it must be owned in neither of these four counties was the disease either entirely prevented or cured. To effect this there must be some means of preventing the dressing from being washed off by rains. In France it is claimed that this was managed by the addition of 20 lbs. of molasses to the mixture ; it is also noteworthy that there the quantity of lime was increased to 20 lbs. It was probably owing to an excess of sulphate of copper that the foliage sustained such severe damage in Cheshire, and it is certainly advisable this season to try 20 lbs. of the quicklime and 20 lbs. of sulphate of copper to 100 gallons of water. Due care must also be taken to mix well, and not to apply till haulm growth is well developed ; the quantity per acre ranging from 80 gallons to upwards of 100 gallons.

Similar experiments in Scotland were a failure from mismanagement, the preparation being neither well mixed nor applied at the proper time. Trials in Ireland were also unsatisfactory for very similar reasons. Those carried out by private individuals were mostly successful, and there is every inducement to try again in a more thorough and comprehensive manner. It is noteworthy that sulphate of iron proved useless as a preventive of disease. Both the blue vitriol and quicklime have long been in use in agriculture for other purposes ; neither is expensive, and the dressing ought to be tried again and again till the matter is well thrashed out. What a boon it will be to have a preventive of disease so simple in character and so cheap ! No other vegetable can approach the Potato in importance as an article of food, and a means of prevention of disease in it would prove so great an advantage that our best efforts should be devoted to the experiments suggested and to others with different quantities of the lime and vitriol.

WORK ON THE HOME FARM.

Nitrate of soda and muriate of potash have both done good work recently as surface dressings ; the soda to give a brisk start to crops growing slowly, and the potash to assist spring corn of yellow hue in well-drained land. The effect of both fertilisers was excellent, that of the potash being remarkable for the speedy disappearance of the sickly yellow from the corn blades, which are now of a rich deep green colour, simply because the soil fertility was made perfect by the addition of the potash in which it was so deficient. Let there be no mistake made about this ; first ascertain if the drainage is good in the land of an unhealthy crop of corn, discoloration and slow growth but too frequently arise from a want of drains. We saw a field of Wheat recently with the plant discoloured and stunted, though it was a southern slope which might be drained most easily ; yet a dense growth of Coltsfoot among the corn showed plainly that it was cold, wet land which was the cause of what was practically a failure in the corn crop. To use surface dressings of nitrate of soda on such neglected land would be mere waste ; to use potash would be a mistake. Manure cannot act well in water-logged soil.

A recent inspection of farm buildings for repairs, and of two farms

for sale, again showed how common negligence of trifles is among farmers as well as owners of such property and their agents. Tenants often ask too much ; agents generally concede too little. Tenants fall into a slovenly way of always having yards and buildings untidy. If only agents would look more elosely after repairs, upon the sound principle of a stitch in time, they would then be able to induce tenants to acquire habits of neatness and decency. Negligence in buildings must cause sickness among stock, and also impart impurity to milk. In a fine cow house out of repair we found floor, walls, and stall divisions positively coated with filth several inches deep. We took advantage of the occasion to point out the evil of this, and had to insist upon a thorough cleansing before the workmen began the limewashing, which we make a point of when repairs are done. At every homestead we find unsound roofs, broken doors and gates, floor, walls, and drains all out of repair. Can one wonder that tenants become careless when such things are left to go from bad to worse year after year ? An estate which we have now in hand has been sadly neglected for many years ; we are now taking the homesteads in turn, and giving all the buildings, farmhouses, and cottages a thorough overhauling, placing all in sound repair, and giving a finish to the work by seeing to outer drains, and baving all roads and paths dressed with sufficient gravel from the estate pits to make them neat and uscul. Tar, paint, and whitewash brushes are all at work too upon walls and woodwork, in the interest of the landlord and the contentment of his tenants.

SEEDSMEN AT THE WARWICK AGRICULTURAL SHOW.

WE have not been favoured with the customary facilities for reporting the Royal Agricultural Society's Show at Warwick, but we understand that the large seed firms are well represented there. Messrs. James Carter & Co. display groups of permanent pasture Grasses and Clovers, arranged so as to furnish reliable information to those who are unskilled. Undesirable plants are also shown. This exhibit is essentially practical in character, and cannot fail to prove instructive. Cross-bred Wheats are also exhibited, and a large demand is springing up for them both in this country and in Canada. There is a grand display of the new well-known Elephant Swede, and the stand is materially brightened by choice flowers, such as Gloxinias and Petunias. Messrs. Sutton & Sons' handsome range of two-storied offices in solid English Oak and Walnut is found on the right of the entrance. It is the same as at the Windsor Show three years ago. The important subject of laying down land to grass is dealt with in a practical way, and samples of seed as well as growing specimens of the best Grasses are shown. A miniature meadow of a few weeks' growth is especially interesting. There is a large and fine display of agricultural roots, and educational cabinets of Grasses, seeds, and plants, also a charming group of choice Gloxinias. Messrs. Webb & Sons have a handsome and instructive stand, containing a very fine display of dried, natural, and other Grasses, also others in growth, with samples of seeds. Beautiful miniature pastures and lawns testify to the excellence of their seeds and manures. Cereals are largely shown by the Wordsley firm, and their Wheats, Barleys, and Oats have become famous. There is a fine collection of Potatoes, including varieties raised by the firm, such as Stourbridge Glory, a really splendid variety, which will become widely popular. Vegetables and roots are abundantly and finely shown. Report speaks favourably of the excellent results that have followed the use of Messrs. Webb's manures, for the manufacture of which they have special works on the Lancashire coast.

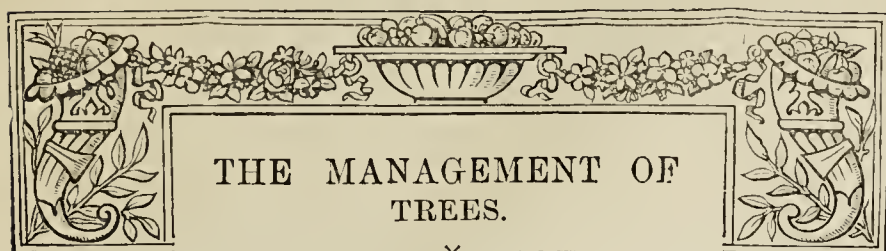
METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.
Lat. 51° 32' 40" N. ; Long. 0° 8' 0" W. ; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1892. June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In	On	
								Sun.	Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 12	29·929	49·8	48·6	N.E.	61·6	54·3	50·2	99·8	51·1	0·102
Monday .. 13	30·081	51·8	46·1	N.E.	58·3	62·1	40·9	118·9	34·8	—
Tuesday .. 14	30· 25	50·4	45·2	N.E.	57·1	57·7	40·9	102·6	31·9	—
Wednesday 15	30·057	56·4	48·1	N.E.	56·0	64·9	38·6	116·3	31·9	—
Thursday .. 16	29·932	56·9	52·0	S.W.	56·1	63·0	46·9	95·4	40·1	0·111
Friday .. 17	29·979	53·2	45·2	N.W.	56·1	64·2	44·7	121·3	40·3	—
Saturday .. 18	30·001	54·8	46·2	W.	55·3	64·8	41·9	114·0	37·2	0·010
	30·015	53·3	47·3		57·2	61·6	43·4	109·8	33·2	0·223

REMARKS.

12th.—Overcast, with frequent slight showers in morning ; very wet from 0.30 P.M. to 2 P.M., and frequent drizzle till 6 P.M. ; fair night.
13th.—Cool, with occasional bright sunshine.
14th.—Cool and overcast almost throughout.
15th.—Generally cloudy, but occasional sunshine.
16th.—Overcast morning, with occasional spots of rain ; frequent showers from 1 P.M to midnight.
17th.—Fine, with frequent bright sunshine.
18th.—Brilliant early ; cloudy with frequent slight showers after noon.
A cool and rather cloudy week, temperature about 6° below the average and 10° lower than that of the preceding week.—G. J. SYMONS.



"TIME and continuity are great tests of friendship, and these tests trees will bear, for flowers soon wither, die down, perish; but trees are more constant, they abide by us always, they are neighbours, I might almost say, for ever." This passage, from an eloquent American writer, will find an answering echo in many minds. Trees are interwoven in his thoughts, as they were in those of his famous contemporary Ward Beecher, with other sentiments than those of casual admiration for stately form, spreading growth, and noble leafage. The companionship of trees is more powerful, if more subtle, than that of men, and the story of the German maiden whose exile from her home in the Black Forest made life a burden too heavy to be borne has a pathos far greater to tree-lovers than to those for whom trees, like Wordsworth's Primrose, are trees "and nothing more." To her, as to the greatest preacher of his time, they spoke with no uncertain voice, and to the latter at least they prompted the clothing of lofty thoughts in language of which the beauty and power spread potent influences far beyond the confines of his native land.

But in their purely ornamental aspects trees may well inspire more than occasional comment. Sylvan beauty is too changeable for that to suffice. In the tender green of springtime, the deeper hue of summer, and the mellow tints of autumn maturity they have phases that demand separate contemplation, for there is beauty in them all. Admiration is by no means withheld from them, but it may be doubted whether their true value is generally realised. Even in small gardens, and when of limited dimensions, they hold a place that nothing else could fill, while with more spacious surroundings and in full stature their effect is satisfying and imposing. The noble specimens that are met with in thousands of British parks and gardens should have their varying phases watched with appreciation, and not only should they be cherished as great factors in securing natural beauty, but perfect specimens should be utilised as models by which successors may be reared up for the gratification of future generations.

In going from place to place one cannot but be struck by the ground that exists for Mr. Thiselton Dyer's complaint, in the admirable lecture he delivered at the last meeting of the Royal Horticultural Society, that tree management does not receive anything like the attention it deserves. Fruit bushes may be excellent illustrations of skilful treatment, being well trained, clean, and with every inducement to healthy growth, but park trees are simply allowed to take their chance. With growth untrimmed and unguided, wounds left to heal as best they may, and fungi unchecked, there is little cause for wonder that so many promising specimens are lost or spoiled. It is well that the task of stimulating reclamation has been undertaken by one who from practical knowledge, close sympathy, and the weight of an authoritative position is so well qualified to secure success. If his words are noted as widely as they may reasonably be expected to be great good will be effected, and as a means to spreading the lessons he wishes to convey the main points of his lecture are drawn prominent attention to in the *Journal of Horticulture*.

One of the commonest fallacies in tree management, we were reminded, is that to secure noble specimens isolated planting

must be resorted to. In the greater part of the Kew woods the trees are remarkably fine, although the soil is sterile, and this Mr. Dyer attributes to the plan of thick planting and progressive thinning-out that was adopted. The fine timber observable in many country places was also, he thought, due to extensive removals. Where isolated planting was practised artificial treatment would have to be resorted to. The point is one of considerable moment, and many would have been glad to hear a full exposition of the lecturer's reasons for the course recommended had time permitted him to give it. It is probable that one consideration he had in view in advocating thick planting was the importance of shelter for the trees while in a young state, the choicest specimens of a clump being protected by their companions from the effects of heavy winds; but it need hardly be pointed out that unless the necessity for prompt and adequate thinning is clearly grasped greater evils may accrue than might be expected from exposure. With young trees crowding each other, and struggling for light and air, we should have a repetition on a large scale of the melancholy sight often presented by garden beds of seedlings when thinning has been neglected.

So largely does the beauty of a park tree depend upon its form that the prominence given to this portion of his subject by Mr. Dyer was more than justified. What we want first of all in a perfect specimen is, he thinks, height, but this is often sacrificed through the want of a little judicious management. He illustrated two forms of tree—the ideal, with its straight, well-proportioned bole rising evenly, tapering to a great height, with branches well distributed and not too long, and the moss-like or Cabbage-headed tree, which is in reality a huge bush and not a tree at all. The former is elastic and there is no tendency to fracture from the effects of rough winds, but the latter is very liable to injury from the wind and snow, the loss of the leader (if there is one) often ensuing. He drew attention to the fact that pollards often present fine boles, and the foundation was so good that had the leaders been allowed to go up instead of being cut good trees would be formed. In forked trees there were the disadvantages of the Cabbage-headed form. There were no elements of permanence in them. If seized by a gale the strain on one fork was so enormous that a split often occurred and the elements of decay found admission.

Is the contrast here set forth exaggerated? Everyone will admit that it is not, and that the Director of Kew has supported himself by correct observation. The remedy, however, is simple. The evils pointed out arise mainly from the excessive growth of the lateral branches, these robbing the leader of support, and the remedy consists in shortening these laterals before the tree has developed. A more pyramidal habit is thus secured. He has found the plan recommended thoroughly effectual. With strong laterals there was a dwarf puny growth on the part of the leader, but when, by shortening the laterals, the former was once got up these gave little further trouble. Trees so treated had, he said, added a third to their height in a season. It will be observed that Mr. Dyer confines himself to a recommendation of shortening in the early stage of the tree, and guards against any suggestion of systematic annual pruning, being no doubt fully cognisant of the fact that this would tend to a multiplication of small growths and an undesirable severity of form. The moral of his teaching is, Use the knife until the leader is in fair progress, then cease pruning, and allow natural development to take place. The system of pruning recommended had, he said, been found to obviate the necessity of staking by Mr. Waterer.

Various plans are resorted to for protecting trees from the attacks of horses and cattle, and Mr. Dyer drew attention to a very simple one that had been pointed out to him. It consisted in spreading metal used for road repairing loosely round the trees, and so great a dislike have cattle to the rough surface that they would not attempt to pass across it. Those who have had trees

severely injured or even destroyed by the attacks of animals will be glad of this simple hint. A clergyman and tree lover had short stakes 18 inches long or so, pointed at both ends, the top end bluntly, and a shoulder notched near it for facilitating driving them into the ground. A number of these affixed under recently planted trees in his field protected them from cattle, but if rough stones answer equally well, the trouble and expense are lessened.

The care of old trees deservedly engaged attention. There was no life, Mr. Dyer pointed out, in the greater part of the bark. It was corky rather than woody matter, filled with air, and no organism could penetrate it. This investiture was a vital necessity to the tree. If wounded, access to the interior was opened and the spores of injurious fungi found their way in. The corky armour should be kept intact, but trees were often injured accidentally, and the broken integument should then be patched up. He advised the removal of all loose bark, the cutting away of decayed matter, the trimming of the edges, and the coating of the whole wound with coal tar. He had been told that this would destroy every tree to which it was applied, but had disproved the assertion at Kew, and remarked that as the tar does not set hard it does not prevent healing taking place, and as it contains hydrocarbon from the coal it is a good antiseptic.

In cutting away broken or other branches the lecturer recommended that they should be severed close to the trunk and pared smooth, thus preventing the decay that frequently sets in when a shoulder is left. He described several fungi injurious to trees, and stated that in the case of some Evergreen Oaks he had had the mycelium cut away with a chisel and burnt, the whole seat of the fungus being excised, the wounds dressed with strong carbolic acid to destroy all unhealthy tissues, and then coated when dry with coal tar. By this means a fungoid attack had been completely neutralised. The remedy is a drastic one, but having been found effectual is worth the attention of those having trees under their charge, yet the question is suggested as to whether Stockholm tar would not answer equally well and be safer.

The brevity that Mr. Dyer was compelled to observe in order not to exceed the time at his disposal caused many points to be touched upon lightly, and others, no doubt, to be held in reserve altogether; but it will be gathered that the good management of trees has in him a practical supporter, and his remarks, it may be hoped, will not be forgotten. With this question is intimately associated the beauty of our parks, gardens, and woodlands, and it would be difficult to find a subject more worthy of thoughtful attention and practical interest. Salient points were elucidated by similar diagrammatic illustrations to those employed by some of the teachers in gardening under the technical education scheme that is being carried out in various districts by the agency of County Councils, and that useful information can be imparted in lectures of this nature was most ably demonstrated by the accomplished Director of Kew. Mr. Dyer did a service to the nation by his valuable discourse, which, it is hoped, will be published *in extenso* in the Journal of the Royal Horticultural Society.—W.

HARDY FLOWER NOTES.

WHEN, as Charlotte Smith says, we see

"Hedgerows engarlanded with many a wreath,
Where the wild Roses hang their blushing treasures,"

or look with delight upon the opening Roses of the garden, we feel so touched by their loveliness that, wedded as we are to our herbaceous plants and alpine flowers, we are tempted for a brief space to be unfaithful to the flowers of our choice, and to linger awhile victims to the blandishments of the reigning monarch of the month. Could we imagine the leafy month endowed with speech she might well say, in the words of Andrein's "Adam:—

"Thou flower supremely blest,
And queen of all the flowers,
Thou form'st around my locks
A garland of such fragrance,
That up to Heaven itself
Thy balmy sweets ascend."

But the full enjoyment of the Rose is only to be found by those who woo her long and faithfully, and not by those who know her only in her ceremonial days, and thus we must turn to less regal flowers with which we are more familiar.

However great the number of those who agree with Spenser, that May is the "fairest maid on ground," there are many of the admirers of hardy flowers who claim that her sister June brings to them an equal or even greater wealth of beauty. She may, they say, have a beauty of a different nature, but her type of loveliness is, though less retiring, of a fuller and riper kind, and the blossoms she brings are, so to speak, akin to the bearer, who scatters from her casket flowers which are in perfect keeping with the deeper green of the foliage, the brighter skies, the stronger sunshine, and the more genial breezes of the month.

IRISES.

Among these brilliant hardy flowers the Irises of June do honour to her who endows us with their wondrous brightness. The Flag Irises with their stout sword-like leaves and massive, yet exquisitely graceful flowers; the grass-like foliage and smaller flowers of the forms of *I. siberica*; the large and beautiful blossoms of the English Irises and the marvellously, delicately beautiful flowers of the Spanish Irises, which have been aptly likened to a piece of Gothic carving, are all delightful ornaments of the garden, and are withal flowers which well repay the closest observation. Like some of our race there are flowers which seem only to reveal their beauty to those who love them and study their forms and hues as we love to think of the qualities of our dearest friends, and are every now and again delighted with some fresh proof of their virtues and qualities. The Iris is such a flower. Stand beside it for a time, study it intently, leave it for a time and return, and some new beauty renews and increases our pleasure. It has been called the "Poor Man's Orchid," and in very truth with these flowers the smallest garden stands in no need of the Orchid house with all its expense and care. No! to quote Alfred Austin:—

"No rare exotics nor forced are these,
They budded in darkness and thrived in storm;
They learned their colour from rain and breeze,
And from sun and season they took their form."

To make a selection is no easy task, indeed as regards the Spanish and English Irises it is a needless one, as most dealers seem to have names of their own for the named varieties they sell, but assuredly the named sorts should be purchased in preference to the mixed varieties. The same difficulty arises with the named Flag or German Irises, although not to the same extent; and those who desire to grow these flowers and have no opportunity of seeing a good collection should procure a catalogue from some of the firms who make a speciality of them, and make a selection representative of the various sections into which the bearded varieties are divided, and should also add some of the many species also offered. I was for long somewhat doubtful of growing many of the Flag Irises on account of the light sandy nature of the soil of my garden. I have, however, found that, with the addition of a plentiful supply of manure, they mostly grow and flower well. The Iris family is now somewhat largely represented in my garden, and few flowers give me greater pleasure. I have, up till now, had but poor success with the few species of the onocyclus sections I have grown, but I hope in time to manage them more successfully.

SAXIFRAGES.

Very beautiful are many of the Saxifrages still lingering with us. It is difficult to single out one or two for notice, and some it is difficult to name with certainty, as few plants are so badly named in our gardens as these. Among the neatest and prettiest at present is *S. crustata*, one of the encrusted section, forming a dense flattish mound of narrow green and grey leaves surmounted by plumes of pretty white flowers. I believe I have this true to name, and it is one of the neatest of the many good varieties of this section. Very pretty also is one I received as *S. Fosteri*, but which I have not the slightest doubt should be named *S. Forsteriana*. This is a hybrid between *S. cæsia* and *S. mutata*, with flattish light green rosettes, slightly marked with grey and with pretty plumes of flowers, the first bloom of which appears and opens close to the rosette and then the flower stem arises. Another Saxifrage with which I am much pleased is one I received this spring as *S. Mooreana*, and which is closely related to the London Pride or "None so Pretty" of olden times. The rosette is large and fine, and the flower scape is dwarfer than that of *S. umbrosa*, the London Pride or "St. Anne's Needlework" as it is called in some districts. It is unfortunate that we have no standard authority for the nomenclature of the Saxifrages (at least, in English), as Professor Engler's book, being in Latin, is not in the hands of many of those who grow this most interesting genus.—S. ARNOTT.



INDIAN ORCHIDS.

(Continued from page 470.)

THE great genus *Dendrobium* first claims attention. More than 150 species out of an aggregate of 350 known to science have been at one time or other in cultivation, and except in such a representative collection as that of Sir Trevor Lawrence at Burford Lodge the probability is very great that ten amateur collections are not to be found in which fifty distinct Indo-Malayan *Dendrobes* are now cultivated. The great decrease in the number of cultivated *Dendrobes* must be assigned to more causes than one. Thus, the almost general mistake of growing Australian *Dendrobes* under the same conditions as the Indo-Malayan species has led to the almost complete extinction of the former in the gardens of Great Britain, the wide difference in the climatic conditions of Australia and the Indian monsoon region not admitting of the general application of the same treatment even to species of the same genus. Many other *Dendrobes*, especially Malayan, that have been introduced, either casually or purposely, possess so little attraction for the amateur that their disappearance is, perhaps, not much to be regretted. There are also others whose constitution appears to be so delicate that it is difficult to keep them alive for any length of time under the altered conditions to which they are transferred in the glass houses of Great Britain. Still, the margin left is a wide one, and for the sake of greater clearness I will mention some of the finest *Dendrobes* we do not see so often as desirable under their sectional headings, a distinction that should not be disregarded by cultivators, as the sectional characters have a practical bearing on the cultural treatment of the groups of species distributed into sections.

To begin with the Fasciculate *Dendrobes*, or those that produce their flowers along the stems chiefly in twos and threes, but sometimes solitary, in some species from the bare stem, in others while the leaves are still fresh. To this category belongs the ever to be admired nobile, the *princeps* if not the *facile princeps* of the genus, the gardener's Orchid *par excellence*. This grand old plant will hold its own indefinitely, and we need not now linger over it longer than to pay the homage due to it, but rather let us turn to two or three other species of the same section that produce their flowers while the leaves are fresh. *D. Linawianum* is an old favourite, and if not so often seen as it should be, we must ascribe it to the curious fact that its habitat is practically unknown, nor is it known to have been imported since its first appearance nearly seventy years ago. Not so, however, with *D. ochreatum* (Cambridgeanum), which is still plentiful in the neighbourhood of Chittagong, and is unquestionably one of the finest of yellow *Dendrobes*, not taking up too much room. And so is *D. Chrysanthum*. Who has ever looked upon the grand specimen at Burford Lodge in full bloom without a thrill of admiration, and perhaps asked, Where can we find another?

Those *Dendrobes* that produce their flowers along the stems after the leaves have fallen are in most cases unquestionably inelegant plants. They are often crooked, knobby, dirty looking, and such like; ugly names have been applied to them by unfriendly critics. But this so-called ugliness is tolerated in *D. Wardianum*, *D. crassinode*, *D. Bensoniæ*, *D. superbum*, and others that have acquired favour. And should not the long, lithe, pendulous stems of *D. Devonianum*, *D. crystallinum*, *D. lituiflorum*, *D. MacCarthiæ*, *D. primulinum*, *D. Pierardi*, *D. transparens* and others, when festooned with lovely flowers from almost their base, be also tolerated or rather welcomed? Nor should we forget to mention the rare *D. arachnites*, a true scarlet *Dendrobe*, of which only one plant has been known in cultivation; the dwarf, bright yellow *D. capillipes*; the richly coloured *D. Falconeri*; the delicate wax-like blossoms of *D. crepidatum*; and the pretty trailing *D. Loddigesii*.

The list is far from being exhausted, but I must pass on to those gorgeous species of the section of which *D. chrysotoxum*, *D. thyrsiflorum*, and *D. Farmeri* are well known types. Several of the most popular of this section have rather short stems with three or four ever-green leaves at their summit, but there are other grand species included with elongated stems having many leaves, but all bear long lateral clusters of flowers of bright and even gorgeous hue. Of the short-stemmed species *D. chrysotoxum*, with its variety *suavissimum*, *D. densiflorum*, *D. thyrsiflorum*, and *D. Farmeri* still hold a prominent place, and among the longer-stemmed forms *D. Brymerianum*,

with its curiously fimbriated lip, is generally cultivated. But can we say the same of the grand old *D. fimbriatum*, *D. moschatum*, with its variety *Calceolaria*, *D. Hookerianum*, the rare *D. Griffithianum*, and the light flowered *D. barbatum* and *D. Palpbræ*? Then we come to the *formosum* group, with delicate white or light flowers. *D. formosum* itself is the delight of amateurs, and scarcely less so is *D. Infundibulum* and its variety *Jamesianum*; but how rarely do we see good healthy specimens of *D. cariniferum*, *D. Draconis*, *D. Lowi*, *D. longicornu*, and *D. scabrilingue*.

Continuing our rapid review of the cultivated *Dendrobes* we next come to a group of magnificent species distinguished by rather long stems, producing near their summits longer or shorter racemes of showy flowers. Among the best Indian types of this section are *D. Dalhouseianum* and *D. clavatum*, with large flowers; *D. aduncum* and *D. Fytchianum* with smaller light flowers. The most admired Malayan types are *D. Phalanopsis*, *D. Macfarlanei*, and *D. Dearei*, while the curious *D. stratiotes* and *D. strebloceras*, also Malayan, are remarkable for the extraordinary persistence of their flowers, which have been observed to continue fresh for upwards of three months.

A host of other *Dendrobes* might still be mentioned well worthy of the cultivator's care, but I will only linger for a moment among the hybrids, and then pass on to other genera. The hybrids are now becoming a numerous group, and while among the earliest raised *D. Ainsworthi* will long be held in high repute, there is no denying the fact that some later acquisitions from like parentage have surpassed it, especially *D. splendidissimum* and its variety *grandiflorum*. Then from other crosses we have excellent results in *D. chrysodiscus*, raised by Sir T. Lawrence; *D. euosmum* and *D. micans*, raised by Veitch; *D. Schneiderianum*, raised by Holmes, and later by Seden; *Venus* by Mr. Norman Cookson; and several others.

Cœlogyne is a noble genus including more than fifty species of which one-half have been at one time or other in cultivation. The grand old *C. cristata* like *Dendrobium nobile* is a gardeners' plant, and not likely to fall into the rear like some of its less favoured congeners. It is true that such a sturdy grower as *C. Massangeana* will hold its ground for an indefinite time, and the still more beautiful *C. Dayana* with equally long pendulous racemes, is not likely to lose favour, especially if it becomes more plentiful in the Orchid houses of Europe than it is at present; but can we affirm the same of *C. barbatum*, with its strange contrast of white sepals and petals and dusky lip, its near ally *C. elatum* with cream white flowers, and the not less beautiful *C. corymbosa*, *C. Cumingi*, *C. fuscescens*, *C. graminifolia*, *C. speciosa*, and others?

But while these beautiful forms are becoming strangers in our midst, it is certainly not so with the *Pleiones*, botanically *Cœlogynes*, and which have, with a certain inappropriateness, obtained the name of "Indian Crocuses." To the *Pleiones* the horticulturist may turn with a feeling of pride, for in them has been achieved one of the greatest triumphs of horticultural skill of the present time. Growing on moss-covered rocks high up on the Himalaya of Nepal, Sikkim, and Bhotan, at elevations from 2500 to 7000 feet (*Hookeriana* still higher) under climatic conditions and environment that cannot be even approximately imitated in the glass houses of Europe, the *Pleiones* are now cultivated with a success that calls forth the admiration of all who see them. Should not this afford encouragement to the cultivation of other *Cœlogynes* which have the reputation of "not doing well" and are consequently too often abandoned to their fate? Who among us that saw the grand inflorescence of *Cœlogyne pandurata* at one of the meetings of the Royal Horticultural Society was not agreeably surprised at the excellence of the culture from which it must have resulted? and yet this most remarkable of all *Cœlogynes* is generally characterised as "a bad doer."—V.

(To be continued.)

SIXTY YEARS OF HORTICULTURAL PROGRESS

(1760—1820).

(Continued from page 312.)

LITTLE incidents in the history of the many nursery gardens by which London was belted round before the mania had developed itself for overcrowding the suburbs with buildings show us the change that has come over our life during the present century. One of these is, that the metropolitan nurseries, and no doubt some about other towns, were not only resorted to for the sake of purchasing plants and flowers, but also much visited by people who wanted to get hints on methods or to inspect new and uncommon species. To some extent our modern establishments attract callers, who make what is often but a hasty inspection. Our

easy-going ancestors, having more time, did this sort of thing very deliberately. Georgian amateurs would make, in spring and early summer, a tour round the nurseries, buying occasionally, but having as a chief object the acquisition of knowledge, which was not then attainable through garden journals. Indeed, the numerous visitors obliged nurserymen, at certain times, to keep men on the watch lest plants or cuttings should be carried off by any who were not strictly honourable. To many of the old amateurs we are somewhat indebted, though their names are mostly forgotten. Plodding workers in their garden plots, which, as a rule, were small, they tried to improve their Auriculas, Pelargoniums, Roses, and other favourites. Generous, too, were they, as Faulkner tells us, distributing gratis seeds and slips of their own raising. Then some of them, with the nurserymen, got up year by year flower shows of a humble kind, often held in the grounds of a roadside tavern, yet which helped to diffuse a taste for garden flowers, as they were generally open free.

Early in the present century the stroller interested in horticulture might have seen a great deal at the west of London within a comparatively small radius. Having sharpened his appetite at the Apothecaries' Garden, Chelsea, which Forsyth, then curator, kept in capital order, he could inspect the nurseries clustering along the King's Road rich in African and American plants, and where he could see illustrated the Chinese and Italian styles of gardening. Bearing off northward he would arrive at Old Brompton with its long famous Park Nursery, even then reduced in size, but still spacious, and containing a great variety of trees and shrubs, evergreen or deciduous. Close by was Kirke's Nursery, comprising part of the old Cromwell House estate, remarkable for its Vines, some trained along extensive walls, others planted along borders. Most of the ground was occupied by fruit trees; it was said to have had at one time 100 varieties of the Apple. Harrison's, adjacent and larger in extent, had a fine show of English and foreign trees suitable for parks or shrubberies. Gibbs' establishment of six acres only was an experimental garden. One portion, divided into 800 compartments, contained specimens of all cultivated plants used as food for man and cattle; another division was devoted to varieties of cereals and grasses. Salisbury's nursery was towards Queen's Elm. It had been planned by Curtis, and most of the plants were arranged according to their affinities, also labelled. It was no great distance to the historic Kensington nursery, founded in the time of the Stuarts, and others in that district, while at Earl's Court any respectable person might examine the numerous forcing houses and pineries of the famous Gunter, who had also many acres of orchard and garden ground. Towards Fulham and Hammersmith were the extensive gardens of Attwood, Bagley, Hutchins, and others, where all kinds of vegetables and herbs were cultivated. The experimental gardens of the Royal Horticultural Society belong to a period rather later; they were on land to the west of Earl's Terrace, and open to the public after 1818.

Many of the older nursery gardens were laid out very irregularly, but about that time they began to exhibit improvements. One of these was having cross walks made with narrow borders, along which new plants could be placed for view. Several authors advocated laying out nurseries and gardens in squares or parallelograms, because the work could then be better calculated; before that the circular form was most in favour. Repton, who began his career as landscape gardener in 1795, was largely employed by the nobility and gentry in laying out extensive grounds. Discarding the formal style that the "omnipotent" Brown had advocated, he introduced methods which have still some popularity, and he is supposed to have often advised a geometric arrangement of beds. One of his peculiarities was that he drew designs and wrote out details, but seldom troubled to see how they were complied with.

Horticultural progress south of London was shown by many gardens. Some private ones, such as those of Hibbert and Thornton, were regarded as amongst the best in England. These were at Clapham, and contained a choice variety of exotics, especially African and Australian, the latter being then a novelty. Mr. Jas. Knight, who was head gardener to Mr. Hibbert, acquired his collection of Cape plants, which was very large, when he left, and then he started a nursery near Stanley Bridge, Chelsea, still well known as Veitch's nursery. Here he had constructed one of the most singular conservatories ever erected, having the side walls carried higher than the glass roof, so that the effect resembled that of looking through a telescope. Such a house, of course, only suited such plants as did not require full light. But eccentricity did not mark his character, for he had much practical knowledge and skill, so that his establishment soon became of importance. He produced some remarkably fine specimens of *Acacia pubescens*, a climber that had been almost unknown, and raised many Camellias from seeds. He succeeded in getting several curious hybrids between the Azalea and Rhododendron, and also brought into notice a large number of alpine and bog plants, which he made a speciality.

To another individual of the same name horticulture is more deeply indebted. He was first President of the Royal Horticultural Society, and a man fully acquainted with those branches of science which have a practical bearing upon the cultivation and improvement of plants. His many and excellent papers in journals or transactions of societies, conveyed to gardeners a vast amount of information of a kind that had never been published before. Mr. T. A. Knight was the son of a Herefordshire clergyman, a man of great ability, which both his sons seem to have inherited. From childhood Knight was an observer of plants and animals. Living, too, amongst orchards he was much puzzled about the varieties of the different fruits, and as to how they were obtained. Hence he came to investigate for himself, and one of his early papers was a protest against increasing Apples by grafting, the result being a gradual loss of vitality. He then made a succession of experiments, fertilising the blossoms of one variety with pollen from another, and sowed the seeds obtained by this crossing. Afterwards he reported the results in a little treatise on the Apple and Pear, published in 1797.

One of the facts he pointed out with regard to the Apple was the desirability of suiting the sorts planted to the soil and climate of the locality, to which no attention had been previously paid. He produced several valuable Pears, which were of a hardy character, and still held in esteem; also seedlings worth propagating of the Plum and Nectarine. Some Strawberries of his also attracted notice, and he wrote on an improved plan of cultivating the alpine sort. He also wrote upon the movement of the sap in trees, methods of forcing and pruning, the preservation of buds that had to be transmitted, and a host of other subjects. To the Pine Apple he gave much time and thought. One of his favourite theories was, that Pines and other exotic fruits should not have a high temperature during the night. Knight's researches went on in all directions—for instance, he did not neglect the useful but humble Potato. He suggested plans for raising early crops, and also a mode of preventing the malady called "curl."—J. R. S. C.

CLEMATISES.

No eloquent description is wanted to add charms to these exceedingly beautiful and universally admired hardy flowering plants, for as a class there are, perhaps, no hardy climbers that can excel them. For climbing up stumps of old trees, training to trellises on walls, or planting to droop over amongst rockwork, no plants are more suitable or will make a more charming display than the old *C. montana*, which still continues to hold its own amongst the many varieties of more recent introduction. Not only are Clematises well adapted for running up all kinds of supports, but their habit and character alone are suggestive of the many ornamental purposes to which they may be put, and there are few places which may not be adorned by them in some way or other. They are perfectly hardy and comparatively easy of cultivation, provided they are given a good rich soil and the necessary attention is paid to pruning and training. It often happens that they are required to be grown in situations where the soil is of inferior quality. When such is the case the best plan is to dig holes about 3 feet deep and 2 feet in diameter, and either fill in with fresh turfy loam and manure, or add a good proportion of the same to the soil thrown out before it is put back. The methods of pruning differ considerably according to the varieties. *C. montana* should be but slightly pruned, in fact merely cutting out the dead portions would suffice, as this variety mostly flowers on the old wood. Liquid manure is also a great help to free flowering, therefore frequent soakings should be given them from time to time according to the state of the weather.—GEO. PARRANT.

SCENTED-LEAF PELARGONIUMS AS DECORATIVE PLANTS.

LAST month, when visiting Canford Manor Gardens, Wimborne, where Mr. Crasp, Lord Wimborne's clever head gardener, has made several extensive improvements during the last few years, I saw the finest as well as the largest batch of scented-leaf Pelargoniums I had ever before seen. The stage in one house was full of bushy plants, growing in large 60 and 48-size pots, all the varieties of this fragrant section being pretty well represented, to the number of 3000 plants in all. A thousand plants are taken up to the town house at one time. These large quantities of Malmaison Carnations, and other suitable decorative plants, are arranged in the conservatory adjoining Wimborne House, as well as in the house itself, and are replaced by fresh plants had from Canford at short intervals during the London season. Two of Mr. Crasp's men are employed during the period indicated in tending these plants and seeing to the floral decorations, which are carried out on a large scale in Wimborne House, whither Mr. Crasp himself goes pretty frequently during the season to see that all is right and to superintend the arrangement of plants which are taken up at the same time. All the plants in the various structures at Canford, including about 3000 admirably grown plants in various stages of growth, of Malmaison Carnations, were looking everything that could be desired—clean

sturdy, and vigorous. The same may be said of the fruit houses, the kitchen gardens (in which were several fine ranks of early Peas), herbaceous borders gay with a variety of flowers, and the extensive and very interesting grounds, evidence of skill and good management being present in every department of this fine Dorsetshire gardening establishment.—H. W. W.

ROYAL HORTICULTURAL SOCIETY.

JUNE 21ST.

SCIENTIFIC COMMITTEE.—Present: Mr. Morris (in the chair), Mr. McLachlan, Dr. Russell, Dr. Müller, Rev. W. Wilks, Dr. Bonavia, Prof. Green, and Rev. G. Henslow (Hon. Sec.).

Tea Plant Attacked by Fungus.—The fungus shown by Mr. McLachlan at a previous meeting proves to be *Poria xylostromatoides*, Berk.; an undetermined specimen in the Kew herbarium, evidently the same species, is marked, "The Tea Stems, Cachar, India." The remedies suggested were the rubbing and scraping the stems, with the use of sulphur and lime.

Carnations attacked by Hylemyia Grubs.—Mr. McLachlan observed that the injury to Carnations was brought to his notice last autumn. The grubs lived beneath the rosette of leaves forming the crown of the plant, and also bored into the stem below the crown. The perfect female insect having been now obtained for the first time it proves to be *Hylemyia nigrescens*, Rnd., allied to *H. Cardui*, which feeds in the flower heads of Thistles. He suggests hand-picking as soon as symptoms of flagging is seen in the Carnations. Mr. McLachlan's note upon this subject will be found in the "Entomologist Monthly Magazine" (sec. ser., vol. iii., p. 135). The Committee will be glad if florists will observe when the Carnations appear to be first attacked, and record any observations they may make, in order to discover the best remedy in future.

Ground Ivy Gall.—Mr. McLachlan exhibited three large green galls on this plant. They are due to *Aulax Glcehomæ*, there being one gall fly in each. He observed that it was an undecided point whether galls are the result of the mechanical puncture, or due to some secretion by the insect, as different kinds of galls are sometimes produced by different broods of the same species—as the root-galls and "Oak Apples" on the Oak. The latter surmise appears to be most probable.

Injury by Fog to Plants.—Professor F. Oliver has prepared and exhibited at the soirée of the Royal Society dried plants, as well as drawings, showing the injuries produced by London fog. Dr. Russell remarked, from some examinations he had made near the end of last year, that the amount of sulphuric acid in the fog was even greater than had been proved to exist in the air at Manchester.

Huskless Barley.—Dr. Bonavia exhibited specimens of three kinds—white, green, and dark purple coloured varieties from India. They were grown in Oude by the Rajah as curious, but were not marketable produce. He also exhibited a small variety of horse bean called "Bakla," and specimens of the white "gram," a variety of *Cicer arietinum*.

Megacarpæa polyandria.—Mr. Burbidge sent a specimen of this remarkable Crucifer. It has twelve stamens instead of six, every one of the usual number being doubled. The fruit has two unequally developed carpels, with a narrow dissepiment, somewhat resembling that of Penny Cress, being quite round and flat. It is a native of Western Thibet, W. Himalaya, Kumaon, at an altitude of 12,000 feet ("Fl. of Br. Ind.," vol. i., p. 161).

White Ants in France.—Communications were received by Mr. Morris from R. S. Warburton, Esq., of the British Vice-Consulate of Rochelle, respecting the ravages done by *Termes lucifugus*, a native of South Europe and North Africa. It was introduced about the end of the last century, and has now spread almost everywhere at La Rochelle. Many public and private institutions are in a dangerous state, as at the Prefecture the wooden beams have had to be replaced by iron. They have destroyed part of the archives, and it is found that it is useless to grow certain plants in the gardens (as Geraniums), as the ants consume the interior of the stalks. It has been found impossible to destroy or get rid of them. Dr. Müller remarked that they had proved very destructive to Vines in certain parts of France. Mr. McLachlan added that another species (*T. flavipes*), which had appeared and done much damage in Austria, has now been pretty well exterminated. Mr. Morris reminded the Committee that the white ant had once been imported to Kew in a log of the Copal tree, and that when old slave ships were left at St. Helena, after liberating the slaves, the ants soon spread over that island.

Potato Disease, and the Use of Sulphate of Copper.—Some discussion arose on this subject relative to the statement that on certain occasions, and probably on different soils, it had proved to be less beneficial than expected; and that the question had been raised whether it did not render the soil injurious to plant life. Drs. Müller and Russell pointed out that the results might be very different if there were an excess of the copper salt or of lime, as there might be not enough of lime to precipitate the former, resulting in an excess of copper salt undecomposed in the soil. For example, Dr. Russell stated that he had taken the constituents of the mixture used by Messrs. Sutton, as stated in the *Times*, and found that the lime was not sufficient to decompose all the sulphate of copper, so that some of the solution had probably entered

the soil. Secondly, the quality of the lime was an important point, as there might be an excess of caustic lime, which would probably be equally injurious. Moreover, the results might vary considerably according as the soil was naturally calcareous or purely siliceous. In the latter case a deficiency of basic materials would very likely bring about an excess of copper sulphate as a residuum. Thus, Dr. Russell observed, that the solution on entering the soil would not at first be decomposed, but if lime or other bases, as magnesia, were present, then it would be completely decomposed, and the copper rendered insoluble. Dr. Müller added the important suggestion that the action of the copper solution might be highly injurious by destroying the nitrifying organisms. The general question, therefore, as to the possible injuriousness of sulphate of copper in the soil, becomes somewhat complicated. It was understood that experiments were about to be undertaken at Chiswick, where the above considerations would be attended to.

STRAWBERRY ROYAL SOVEREIGN.

THIS may fairly be described as the best of Mr. Laxton's new varieties which have been placed before the Fruit Committee of the Royal Horticultural Society this season, and it well won a first-



FIG. 83.—LAXTON'S ROYAL SOVEREIGN.

class certificate at the last meeting. The fruits are variable in form, some being somewhat flattened and others conical, the former slightly furrowed. They are very firm and travel well, bright crimson in colour, deep on the sun, pale on the shaded side. The flesh is pink or pale flesh coloured, solid, with a brisk yet rich and distinct pine flavour like Carolina Superba. This very rich and good looking Strawberry ripened at the same time as Noble, and Mr. Laxton regards it as the most valuable he has yet raised. The fruits are fairly represented in the engraving. Royal Sovereign appears to possess the qualities that should render it a favourite for choice dessert and market purposes.

ARALIAS AS TABLE PLANTS.

ARALIAS are without a doubt amongst the most valuable plants for table decoration. The foliage of most of them is light and graceful. Every attention should be bestowed upon them in order to secure a good stock of plants in all sizes, as a whole table could then be done at one time, large plants being used for the centre and smaller down the sides amongst the dishes. If well mossed up and covered with Ferns or *Asparagus plumosus*, the latter being laid on the cloth with any bright flowers placed on it at intervals, a charming table is produced at once light, pleasing, and graceful.

When looking round the gardens at Abberley Hall, Stourport, the other day, I was much pleased with the quantity and quality of the

plants grown by Mr. Young. His system of increasing his stock of plants is by cuttings taken off with a heel from the stems of beheaded plants, inserting them in cocoa-nut fibre refuse and sand, in a propagating case, with a bottom heat of 70° to 80°. With care the cuttings strike readily; afterwards when rooted they are potted singly in 60-size pots, in a mixture of half peat and half loam and silver sand. They are then plunged in a frame to start them into growth, and afterwards repotted in the same mixture of soil with a little charcoal added into 5 and 6-inch pots. By growing the plants in a brisk heat they are soon serviceable. Mr. Young showed me some cuttings in the propagating case which were just emitting roots, also others in 3-inch pots, and a quantity of beautiful plants from 9 inches to 2 feet 6 inches raised from cuttings.

Aralias are often infested with scale, but a little timely attention with a camel's hair brush will keep the pest under. I have found Lemon oil a most useful insecticide amongst this class of plants. The sorts best adapted for table plants are Veitchi and its variety gracillima. They take longer to root than A. elegantissima and A. Chabrieri, which are also good for table plants. A. leptophylla and reticulata are more hardy and of stronger growth, so that they can be used for vases in rooms, whilst A. Sieboldi and A. Sieboldi variegata are most useful for halls or sub-tropical bedding, their fig-shaped leaves producing a good effect. —JOHN CHINNERY.

WINCHESTER ALLOTMENTS.

WEDNESDAY the 15th of June will long be remembered by allotment holders in the neighbourhood of Winchester. An exceptionally sharp frost was experienced there on that date, sufficient to injure the haulm of Potatoes, in some instances most seriously; Dwarf Kidney and Scarlet Runner Beans were also killed, which is to be much deplored. I have no means of knowing how low the thermometer actually fell on that date, but, judging from appearances, there could not have been less than 4° of frost. At Swanmore the thermometer fell to 33°. It seems somewhat strange that the allotments in the Winchester suburbs suffered so much as they did, when we consider that the majority of them lie high and dry—too much so this year—the subsoil being chalk. The reason, of course, is the extremely low temperature, added to the fact that the situation is somewhat exposed to the north-west, from which quarter the wind was blowing at the time. In one field of not less than twenty acres, situated at Winnall, the whole being laid out in quarter acre patches, it was difficult to find an instance where the crops had escaped the frost.

Much credit is due to the allotment holders of Winchester for the exemplary manner in which they cultivate and manage their plots. I have not seen any on such a large scale so well managed as those in question, the crops being well arranged and there being an almost entire absence of weeds, which, considering the mixed daily employment of the owners, is most satisfactory and deserving of every praise. The tenants have the option of sub-letting part of their allotment in rod pieces, an arrangement which appears to give great satisfaction, as in many instances that amount is found quite sufficient for those whose spare time is somewhat limited. £1 per quarter acre is the rent charged, 10 per cent. being returned on the prompt payment of the rent, an arrangement which appears to work satisfactorily. This price may be considered high by some, but in conversation with some of the holders I find where the land is well managed a profit can be made; one person declaring that £5 net profit can be made from 40 rods by good cultivation. Potatoes and Cabbage are the main crops. Of the former Beauty of Hebron, and its white form, with some White Elephants, are regarded as the most satisfactory. Fifty sacks of Potatoes are considered to form a good average crop from 60 rods of ground. It is computed that not less than 130 acres of land are under cultivation as allotments within a radius of two miles from the centre of the City, which speaks well for the energy of the holders of the plots in a population just under 20,000.—E. MOLYNEUX.

THE PANSY AND VIOLA AS POPULAR FLOWERS.

THE widespread popularity of these flowers often leads to papers and discussions on the Pansy at meetings of florists, and Mr. George McLeod of Chingford, Essex, has done good work in this way in the metropolitan districts. Another good amateur cultivator, Mr. Wm. H. Morton, solicitor, Shep on Mallet, Somerset, very recently read an admirable paper with the above title at a meeting of the local Gardeners' Association, in which he gave the early history of the Pansy from 1813 or so, when the wild Pansy of the fields collected by the late Lord Gambier was taken to his head gardener, the late Mr. Thompson, afterwards a famous cultivator of the Pansy, to see if he could effect any improvement upon these wild forms. In Mr. Thompson's hands this Pansy made considerable headway, and he and other cultivators soon created a collection of greatly improved forms, of which lists and coloured illustrations exist, and so the work of improvement went rapidly on in the hands of Mountjoy, Thomson, Hale, Turner, and a host of others.

Mr. Morton expressed indebtedness to much information from the history of the Pansy, written by William Dean, in Simkin's "Book on the Pansy." Some forms of Fancy Pansies existed as far back as 1846 to 1848, introduced from France by the late Mr. John Salter, at one time a nurseryman at Versailles, near Paris, but who at the date mentioned had settled down as a florist at Hammersmith, London. But these varieties were scouted as "French rubbish" by our old florists, and were never received into favour. About the year 1858 some improved forms

were met with at Lille in France by Messrs. E. G. Henderson & Sons of the Wellington Road Nurseries, London, and were placed in Mr. W. Dean's hands for cultivation, and he at once saw there was a future for this new race of Pansy, despite the forebodings of many a brother florist. And what is the Fancy Pansy now? Those who had the privilege of seeing the grand flowers of newer kinds at Birmingham, Leicester, York, or Edinburgh, can testify to the immense improvement in this most popular flower. Mr. Morton treated his subject in an exhaustive manner, showing the marked difference in the two classes of "Show" and "Fancy," their properties, and cultivation. The lovely Violas also came in for a good share of notice. A very hearty vote of thanks was accorded to Mr. Morton.



EVENTS OF THE WEEK.—This week's Show list is a very heavy one. To-day (June 30th) there are Rose Shows at Canterbury, Eltham, and Winchester. On Saturday, July 2nd, the National Rose Society's Metropolitan Exhibition takes place at the Crystal Palace. On Tuesday, the 5th, there are Rose Shows at Bagshot, Gloucester, Sutton, Diss, and the International Horticultural Exhibition, the latter being continued on the following day. On Wednesday, the 6th, there are Exhibitions of Roses at Hitchin, Farnham, Brockham, and a general Show at Croydon. A meeting of Gardeners' Associations is to be held at Tunbridge Wells on the same day, and in the evening the Royal Botanic Society's Fête takes place. On the 7th there are Rose Shows at Norwich, Windsor, Bath, and Woodbridge, together with general Exhibitions at Ware and Lee, the latter being continued on the following day. The summer Show of the Royal Horticultural Society of Ireland also takes place on the 7th.

— THE WEATHER IN LONDON.—The weather in the Metropolis and its neighbourhood has undergone some changes during the past week. The 26th and 27th were dry and very hot, as also was the 28th until the evening, when a heavy storm, of which the rapidly falling barometer had given warning, broke over the city. Vivid flashes of lightning and heavy peals of thunder continued for an hour and a half, rain falling in torrents. After this the storm abated, but there was a recurrence of it in the early hours of the morning. Full reports have not been received at the time of going to press, but the storm does not appear to have confined its area to the immediate neighbourhood of the Metropolis, and it is to be feared that considerable damage has been done to the Roses, while the Strawberry picking, now in full progress in Kent, will probably have been greatly interfered with. The barometer now shows an inclination to rise, but the weather is cloudy, and further showers are expected.

— FLORAL FETE AT THE MANSION HOUSE.—A Rose Show and Floral Fête was held at the Mansion House on Friday, June 25th. The saloon and Egyptian hall were full of flowers, and when the fête was opened at half-past two by the Princess Christian a beautiful effect was presented. Lady Bective, Lady Parker, Mrs. Grimwood, Mrs. Foster, Lady Monckton, the Lady Mayoress, Lady Arthur Hill, Mrs. Aste, and Miss Eastwood had well furnished stalls, from which flowers and fruit were sold, the proceeds going to the Royal Hospital for Children and Women in Waterloo Bridge Road.

— ROYAL BOTANIC SOCIETY'S CERTIFICATES.—The following certificates were awarded by the Royal Botanic Society on June 22nd:—Floricultural.—To Messrs. Kelway & Sons for Delphinium Salamander, Pæonies Cavalleria Rusticana, Lady Alexandra Macduff, and Paderewski; to Messrs. Barr & Sons for Pæonies Snowball and Madame Breon; to Messrs. Collins & Gabriel for Pæony Arthur Collins; to Messrs. G. Paul & Son, Cheshunt, for Pæonies Felix Crousse, Madame Loise, and Madame Forel; to Messrs. W. Paul and Son, Waltham Cross, for Rose (Tea) Corinna and Hybrid Tea Lady Henry Grosvenor; and to Messrs. Turner & Son, Slough, for Pelargonium Rosy Gem and climbing Rose Crimson Rambler. Botanical.—To Messrs. J. Veitch & Sons for Cornus alba Spathi, Cupressus Lawsoniana Westermanni, Hydrangea japonica Mariesi, Abies orientalis aurea, and Cypripedium Telemachus; to Messrs. Hugh Low & Co. for Cypripedium Chamberlainianum and C. volonteianum Lowianum; to Mr. James for Anthurium Austiniana × Wardi; to Mr. H. B. May for Adiantum cuneatum grandis and Nephrolepis recurvata.

— OUR INDEX.—In consequence of the publication of the index of matter in the six months of the *Journal of Horticulture*, now ending, several valuable and interesting articles are crowded out, but they will appear as soon as space is available.

— THE ROSE SHOW AT THE INTERNATIONAL HORTICULTURAL EXHIBITION, Earl's Court, which opens on Tuesday next, is expected to be a good one. Messrs. Wm. Paul & Son inform us they will exhibit extensively and continue their display for some time.

— NATIONAL PINK SOCIETY.—The Northern Show of this Society, which was to be held in the Botanical Gardens, Manchester, on July 16th, in conjunction with the Exhibition of Roses, has been postponed to July 22nd.

— AWARDS AT THE INTERNATIONAL HORTICULTURAL EXHIBITION.—An official list has been issued of the prizes, medals, and certificates awarded at the Show held at the International Horticultural Exhibition on May 27th and 28th.

— GARDENING APPOINTMENTS.—Mr. W. Beale has been appointed gardener to Edwin J. Brett, Esq., Oaklands, St. Peter's, Isle of Thanet. Mr. G. Picker, late gardener to C. E. Shea, Esq., The Elms, Foots Cray, Kent, has been appointed gardener to Francis R. Pease, Esq., Hesselwood, Hull.

— MIMULUSES AND VIOLAS.—The flower beds in Regent's Park are now very attractive, and numerous effective combinations may be noted. A mixture of brown Mimuluses with Viola lilacina is quaint, pleasing, effective, and simple. Such a bed would be very suitable for adorning a semi-shaded spot in many gardens.

— STRAWBERRIES IN SAND.—*Apropos* of "Nomad's" interesting jottings on Strawberries in last week's *Journal*, it may interest him and others to know that Mr. T. Sharpe of Virginia Water, who exhibited such fine examples of Marguerite at the last meeting of the Royal Horticultural Society, grows his plants in a soil that appears to be almost pure sand, but it is on a moist base no doubt rich in phosphates.—P.

— HARDY FLOWERS AT FOREST HILL.—Messrs. Laing & Son send us a box of hardy flowers, comprising *Aquilegia chrysantha*, *Campanula persicifolia grandiflora*, *C. glomerata dahurica*, *Chrysanthemum leucanthemum semi-duplex*, *Lychnis vespertina alba plena*, *L. Viscaria plena*, the hardy blue *Salvia Tenori*, *Pulmonaria sibirica*, *Delphinium nudicaule*, *Geum miniatum*, and *Centaurea dealbata*; all good things.

— PRUNUS PISSARDI.—A far better idea of the real value of this tree can be had when it is seen sprinkled about amongst others in gardens and nurseries than when a few branches are shown at an exhibition. Its rich leafage imparts quite a glow to its surroundings. There cannot be much doubt that it will be more and more extensively planted as time goes on. Even stripling plants are effective. We are now getting such a wealth of shrub and tree colour that there is no excuse for the monotony prevailing in most places.—WANDERER.

— PHENOLOGICAL OBSERVATIONS.—A report of the Phenological Observations in connection with the Royal Meteorological Society by Mr. G. Mawley is to hand. It is admirably compiled, and contains some very interesting information on the weather, and its effects on flowers, birds, and insects. Additional observers are much wanted in the north and east of Scotland, and also in Wales and Ireland. The observations have been made so simple under the new system that there is not the slightest difficulty in noting them. Any communications on the subject should be addressed to Mr. Mawley, at Rosebank, Berkhamsted, Herts.

— COMMON CARNATIONS.—I use the term "common" in no depreciatory sense, but simply as indicating a class of Carnations that are often seen in gardens, but which do not approach any florist's standard. It cannot be generally known what vigorous plants and abundant blooming can be had merely by sowing seed of cheap border varieties in the open air at the present time, or seed would be more often resorted to than it is for securing a display. Those who make a feature of choice Carnations would not, of course, acknowledge acquaintance with those of the type to which I am now referring, but the plants bloom with such profusion, and the flowers are so bright in colour, that deficiencies of form are forgotten by those whose main object is to make their beds and borders attractive. I mention these common Carnations with a certain amount of fear and trembling, but all readers are not florists, and some may be glad of the hint.—P.

— MR. WM. PAUL, F.L.S., of Waltham Cross, is about to publish a selection of articles written for gardening periodicals and papers read before various Societies between the years 1843 and 1892. It will form an 8vo. volume of about 600 pages, and will appear early in the autumn of the present year.

— MARGOTTIN'S HERITAGE.—The writer of an obituary notice of the late Jacques-Julien Margottin in "Le Jardin," relates a good story of the excellent old Rose grower. "At fourteen years old," said the latter, "I had to earn my bread. I was an orphan, and for my entire heritage my father had left me nothing but a razor!"

— EXPORTATION OF RHODODENDRONS.—It would probably surprise many to know on what an enormous scale our choice hybrid Rhododendrons are exported to America. Many thousands are sent over in March packed in cases with dry moss, and after a fortnight's journey are said to flower perfectly well. England is not altogether played out yet.

— BIRDS AND FRUIT.—When I read the note on the preservation of birds from "Gartenflora," on page 475, I said to myself, "Ah! but what about bullfinches?" This spring I saw at least an acre of Black Currants completely stripped of their buds. For my part I would rather have insects to tackle than these pests, and I think encouraging such birds by winter feeding is a grave mistake.—HAZELTHORPE.

— SUCCESS WITH YEARLING STRAWBERRIES.—Last autumn I accidentally came across Wright's "Profitable Fruit Growing," and acting on the advice given about Strawberries, I am pleased to be able to state that this year I have had a wonderful crop although the plants are only one year old. For years past I have tried to get some fruit, but have invariably been disappointed. So I am very pleased that I came across the book.—R. HICKMAN.

— BERTOLONIAS.—It is not often that these beautiful foliage plants are met with, chiefly, no doubt, because they are difficult to manage. Three that are well worth growing are the old marmorata with its velvety leaves; Comte de Kerchove, pea green, lined and blotched with deep rose; and Madame Auguste Van Geert, dark bronze with silvery pink veins and spots. Mr. F. Bause has a choice collection in superb condition at Nerwood.

— PANSIES FROM HAWICK.—Mr. John Forbes sends us a box of beautiful Pansies, of which he has now a splendid display. The flowers received are large, substantial, and fresh, the colours bright, clear, and well-defined. One of the most beautiful varieties was Mrs. John Bolton, while Jas. Miller, Wm. Dean, Mrs. Street (a seedling), Robt. Jamieson, Walter Prior, Mrs. Freeland, Mrs. McIntosh, Princess Beatrice, Maggie Forbes, and Jas. Campbell were all well represented.

— ARTIFICIAL MANURES IN THE GARDEN.—A lecture on this subject by Professor Paul Wagner, head of the Agricultural Research Station at Darmstadt, has been published by the well-known dealers in artificial manure, Messrs. H. & E. Albert. It is a record of carefully conducted experiments, and is full of practical information and suggestions. Numerous photographic reproductions of the results of the experiments with vegetables and flowers are given. The German savant has reduced his calculations to the smallest quantities, and the lecture may be read with benefit by all classes of cultivators.

— ANOTHER YELLOW ARUM.—There have been rumours afloat that another yellow Arum was likely to be exhibited before long, and it duly appeared at the last meeting of the Royal Horticultural Society, under the name of Calla Pentlandi. It was sent by R. White, Esq., Pentland House, Lee. The new comer is a great acquisition, having large foliage and richly coloured spathes. The yellow is deep and butter-like, devoid of green except for a faint suffusion quite at the base. It is a bold and striking plant, and will probably be much sought after.

— DOUBLE GERMAN WALLFLOWERS.—It is quite a pleasure to meet with good examples of these old plants, and it is not the less so because it is so rarely experienced. I observed a few in the gardens at Oakleigh, East Grinstead, a month ago, and the large massive spikes were extremely handsome. I should think a bed of them would be a beautiful sight. Some of our leading seedsmen now offer very fine strains, and few persons who gave the plants a trial would be disappointed with the result. The present is a good time to sow, but no delay should take place, as it will soon be too late to insure the best results. The seed should be sown in the open ground, just the same as that of the other Wallflowers.—P.

— A GARDENER'S ILLNESS.—A gardener bearing a name not unknown in the horticultural world, having for some time past been stricken down by illness of a very serious nature, is by the kindness of his proverbially kind employer permitted, though incapacitated, to retain his position and to have his son, who is now serving creditably as head gardener, to act as under gardener in carrying out his father's duties. This of necessity liberates the foreman, who kindly concurs in the arrangement to meet the emergency. He is twenty-six years of age, well trained, industrious, intelligent, and trustworthy, capable of managing a garden in which two to four or five men are employed, or is willing to serve as foreman in a large establishment. As it would be a great relief to the prostrate gardener to know that his foreman does not sustain loss through the misfortune, we shall be glad to forward any letters we may receive from ladies, gentlemen, or gardeners that may lead to a worthy man obtaining the desired employment. The case is of such a special nature, and the whole circumstances are so well known to us, that we feel justified in mentioning it in a special manner in these columns.

— TREE PLANTING AT WARWICK CASTLE.—Before leaving Warwick Castle on Wednesday, 22nd, their Royal Highnesses the Prince of Wales and the Duke of York performed the interesting ceremony of planting two Cedar trees as mementoes of their visit to the ancient and princely home of the Earl and Countess of Warwick. The trees planted were two Cedars of Lebanon, having been raised from cones obtained from the famous Cedars which abound in the Castle grounds. The planting was performed in the presence of the Earl and Countess of Warwick, Lord and Lady Brooke, Lady Eva Greville, Capt. the Hon Alwyne Greville and Mrs. Greville, and the Hon. Sidney Greville. The Countess of Warwick placed a coin of the realm under the centre of each tree. The arrangements were carried out by Mr. H. Dunkin, Lord Warwick's gardener.

— WHY NOT IN ENGLAND?—A daily paper says that the experimental farm established by the Government of Victoria for the purpose of ascertaining the suitability of the soil and climate for numerous kinds of crops, and for the instruction of students in agriculture, now extends to nearly 5000 acres. It is situated at Dookie, in the north-eastern district of the Colony, and has been in practical operation for the last seventeen or eighteen years. A small portion of the land is under Vines, another portion is devoted to Zante Currants, and various medicinal plants are also cultivated. The Dookie experimental farm, however, represents but a small part of what is being done for agriculture by the Government of Victoria. The Agricultural Colleges Act provides for the permanent reservation from sale of 150,000 acres of Crown lands by way of endowment of State agricultural colleges [including horticulture, it is hoped], and experimental farms.

— DEATH OF MR. T. B. HAGUE.—Mr. T. B. Hague, a well known Sheffield amateur horticulturist, died on June 17th, after a lingering illness of many months. He was at the time of his death President of the Walkley Amateur Floral and Horticultural Society, having held that office for ten years. He took the heartiest interest in the welfare of the Society, frequently exhibiting the products of his skill at its fortnightly meetings. The annual summer shows, together with several spring shows held by the Society, were to him a source of infinite pleasure and pride. He cultivated Roses especially well, also the decorative varieties of Dahlias, Carnations, Picotees, Pansies, and many kinds of hardy herbaceous plants. In former years he grew Orchids, Primulas, and Chrysanthemums successfully, and was always considered a good judge of these as well as of other flowers. The Sheffield, Hallamshire and West Riding United Chrysanthemum Society numbered Mr. Hague as one of its most active promoters, and he also took part in the negotiations which resulted in the provincial show of the National Chrysanthemum Society at Sheffield. His funeral took place on June 21st at the Burngreave Cemetery, and was attended by a large circle of his horticultural friends who esteemed him for his geniality, his uniform kindness and ready help whenever sought either by professional or amateur. Some beautiful wreaths of flowers adorned his coffin, one of which was sent with deepest sympathy by the Walkley Floral Society.—E. D. S.

— HOEING *versus* MULCHING.—In his note on Mulching in the Journal of June 16th, "H. W. W." says:—"Without incessant watering or heavy mulching it is impossible to obtain satisfactory crops from light shallow soils in dry hot summers." I should like to know whether gardeners in general agree with this. For my own part, without questioning the value of mulching, I must say that I have greater

faith in the constant use of the hoe. If the surface crust is constantly broken the lines of evaporation are severed, the soil itself serving as a mulch. Moreover, air has free admission. I doubt if gardeners realise the immense value of a continual stream of fresh air flowing to the roots of plants, and, in my humble opinion, which many may contradict, mulching, as generally understood, is greatly overdone. When "H. W. W." says that it is "impossible" to obtain satisfactory crops without it under the conditions he specifies, I think he greatly exaggerates. It may be impossible to him, but it is not to others.—E. H. M.

— CAMBRIDGE BOTANIC GARDEN.—In the annual report of the Botanic Garden Syndicate we find that the new range of plant houses, commenced in 1888, has been completed during the past year, with the exception of the Filmy Fern house. A special collection of Ferns has been formed in the tropical Fern house for the purpose of illustrating the tribes and sub-orders according to the "Synopsis Filicum." An improvement has been made at the end of the bog garden, where moisture-loving plants of various kinds are grown, by the substitution of stone for tree stumps. These were objectionable on account of the fungi growing upon them, and are now removed to a more suitable position for the purpose of yielding supplies of fungi. The culture of aquatic and marsh plants has been extended. The bed of peat in which the Ericaceæ are grown has been enlarged, and in its altered condition has proved to be satisfactory. About 1168 plants and 1336 packets of seeds have been received. Contributions have been received from several Botanic Gardens and a return has been made to most of them, 694 plants and 1412 packets of seeds having been distributed. Among some of the interesting plants received are: *Lathræa clandestina*, a showy flowered root parasite, which at the date of writing is well established; *Mutisia retusa*, a climbing Composite, *Iris paradoxa* × *iberica* and others of Prof. Foster's hybrids; *Phytelphas macrocarpa*, a Palm, the nuts of which afford vegetable ivory; *Streptocarpus Wendlandi*, a new species; *Arisæma Leschenaulti* and *Turneria aurantiaca*, an apparently good plant of an order rarely represented in cultivation. As showing the progress of the Garden, it may be mentioned that in summer, when annuals were in growth, no less than a fourth of the genera of the vegetable kingdom, according to the standard of the "Genera Plantarum," were represented. Many specimens have been added to the Botanical Museum from the Garden.

PROGRESS IN BEGONIAS.

To those in whom an interest in our valuable florists' flowers is not swamped by an absorbing regard for Orchids it must be a source of great satisfaction to mark the progress made in tuberous Begonias. Their early history has been written too many times to need further recapitulation, but it might almost be claimed that there have been two distinct stages in the course of development which they have undergone with such magnificent and striking results. In the one may be traced the evolution of form, size and colour—the development, in short, of flowers. In the other we see results gained in habit and vigour—the development of the plant. It would be futile to set one against the other, and wrangle as to which stage is the more important; it is far more to the point to recognise how completely the advantages of flower beauty are interwoven with those of compact habit, handsome leafage, and vigorous stems. So recently as five or six years ago it was common to observe the loveliest of flowers sadly marred by being half hidden with leaves and drooping their faces downwards. They were delightful in form and beautiful in colour, but as neither could be properly surveyed and seen to full advantage they could only be compared to valuable stones in a bad setting. That was the point at which the first stage referred to left us, and had progress ended there the battle would only have been half won, but happily our leading hybridisers were alive to the requirements of the occasion, and the second stage made good disadvantages and defects.

Now that we are so far on the road it is of interest to form a mental comparison between the present standard and that of a few years ago. Those who are able, from a more or less intimate knowledge of both, to grasp the difference between them will be the best able to judge what an important part the second stage in Begonia development has played. Recollections of the past may be brought into line with observations of the present, and the old set of varieties placed in mental array by the side of the new. In the one is found a beauty of blossom that seems hardly capable of further improvement, but with short weak stems and drooping flowers; in the other, long stiff stalks bearing the flowers erect well above the leaves. When this process is followed the great

superiority of the latter is clearly recognised, and it is seen that the hybridiser's triumph is complete.

But this is not all that will be perceived. High as was the quality and great the diversity in colour of the flowers, there has been improvement even here, especially in the doubles. In intensity of colour there has hitherto been nothing to match the two De Rothschilds, Alfred and Leopold, recently exhibited by two leading growers. They glow with a richness that appears to be a concentration of all the deep colouring elements on Nature's palette. And besides these there has been a break of another kind—a flower edged, Picotee-like, with a distinct "wire" of colour. This has emanated from the famous establishment at Forest Hill, and appropriately honours in name its raiser and its

Every point of merit which has been claimed for the most improved types is present in the plants. It is no exaggeration to say that they are attractive by their abundant, healthy, and handsome foliage alone, but still more so by admirable habit—long, stiff stems, and noble flowers holding themselves boldly up. The doubles are a superb assortment. So numerous and so distinct are they that the time cannot be far distant when it will become necessary to classify them according to type. There are some that follow the Rose in form, others the Camellia, and others, again, the Hollyhock. Individual tastes must be left to decide which are the most beautiful. Each is perfect in its way, and in each type colour variation appears to be equally extended. Then in the singles we not only observe great size and substance allied with a vast range



FIG. 84.—BEGONIA, LAING'S PICOTEE.

distinctive character—Laing's Picotee. The artist has endeavoured, not without success, to adequately fulfil a delicate task in doing justice to the new comer in fig. 84. It is a flower of quite exceptional charm. The form is perfect, the petals evenly disposed, and the bloom well filled, as a good Carnation or Picotee should be. The ground colour is flesh, and the edging is clear rose, shading off into a delicate band of a paler hue round the margin. It is to be hoped that this is only the forerunner of a class of Picotee-edged Begonias. Others of similar distinct, attractive and pleasing appearance will always be welcomed as acquisitions.

The Forest Hill growers have had so large a share in the Begonia improvement to which allusion has been made that it is only just to supplement previous remarks by direct reference to their magnificent collection. It grows yearly in extent and beauty.

of hues, but an even disposal of petal and a circular form that recall the best round-flowered Zonal Pelargoniums. The old pointed segments are giving way to others that are gracefully moulded and arched, with results that must give pleasure to every lover of the flower.

The Picotee-flowered double stands alone of its class, but in the latest set of novelties it has some beautiful companions. Lady Dorrington, blush pink, very free; Princess Christian, primrose, a beautifully moulded flower; and Sir Trevor Lawrence, rich crimson, a large and well-developed bloom, may be mentioned in particular as unmistakeable acquisitions. Other lovely varieties of hardly so recent a date, but excellent in habit, are Camellia, rose crimson, with very evenly disposed petals; Duchess of Teck, rich yellow, finely proportioned, and very free, an ideal Begonia; Elfride, rose, very free; Henshaw Russell, a brilliant scarlet,

wonderfully free flowering, and of splendid habit, standing out as conspicuously in this respect as King of the Blues does amongst Hyacinths; Jeanne d'Arc, a fine white; Lafayette, glowing scarlet and a profuse bloomer; Major Hope, beautiful rose; Marquis of Stafford, carmine, rich in colour, and very free; Mrs. French, as good in Begonias as amongst Pansies, primrose, remarkable for great size and fulness; Prince of Wales, a fine crimson, good for baskets as well as pots; and Triomphe de Nancy, pale yellow, very large, and full. As a basket variety Richardson's Favourite deserves mention; it bears its bright crimson flowers in profusion.

The above cannot be considered to adequately represent the collection. They are but a few picked out here and there in passing from a host of others that could not be called inferior, and it was the same with the singles. Of the new set Duchess of Leinster, buff orange; Gigantea, rosy pink with light centre, and having beautifully rounded flowers; Lady Pigott, salmon, very large; and Sir Thomas Paine, bright crimson with well rounded petals, are particularly fine. So, amongst the others, are Avalanche, pure white, round flower; Charmer, carmine crimson with light centre, a superb variety; Constance, white, a very persistent bloomer; Darkest Africa, purplish crimson; Her Majesty, white, edged with rosy pink, splendid; J. W. Wilkinson, brilliant scarlet, fine and free; Lady Brooke, violet rose; Lady Cloncurry, bronzy scarlet, a profuse bloomer; Lady Whitehead, rosy pink, light centre; Leah, yellow, finely formed and very erect; Miss E. F. Cooper, blush; Mrs. Joseph Chamberlain, rose, white centre, large and finely formed, one of the best; Prince Albert Victor, fine scarlet; Princess of Wales, bright pink; Queen Victoria, rich rose; and Salmonea, salmon, beautiful shape. Nor ought a new yellow to be forgotten. It is not large, but is well formed, and what is still more, possesses a perceptible odour of Primroses. We named it Maréchal Niel.

The interest derived from an inspection of these and others at Forest Hill will not be lessened by a survey of the many scores of thousands planted in the open air. Later on these will be a display as rich, as unique, and as wonderful as that under glass, and more than this need not be said.—W. P. W.

THE GOLDEN-SPATHED CALLA.

CONSIDERING the amount of attention given to this beautiful plant wherever it has been exhibited during the last three years, and the numerous awards of first-class merit it has received, commencing with that of the Floral Committee of the Royal Horticultural Society, when it made its first appearance in public at one of the Drill Hall meetings in the early summer of 1889 down to its last at the International Horticultural Exhibition on the 7th inst., when it was awarded a silver medal, I do not think that the amount realised by the sale of the entire stock of 243 plants on Friday last can be considered high; indeed, it must have been a grievous disappointment to the raiser and proprietor of the plant, who a short time previous to the auction had actually received and refused an offer from a leading nurseryman of exactly double what its sale by auction realised, or £800.

It was, however, as it happens, very fortunate for the raiser that the sale took place when it did, when his plant was believed to be the finest and most beautiful thing of its kind in existence, as had it taken place, say, next week, it would probably not have realised anything like the sum it did, as the new Calla Pentlandi exhibited by its raiser, Mr. White, at last Tuesday's Drill Hall meetings of the R.H.S., and fully described in the account of that meeting in your last issue, appears to be in every way a much finer and more beautiful plant than C. Elliottiana. As a large number of the small plants sold at the sale in half dozens, and fetching from 3 to 2 guineas the lot, were only unproved seedlings, it will be a matter of some curiosity to learn how many of them come true to name, as the original plant being a hybrid between C. æthiopica and C. hastata, a large proportion of the seedlings may be expected to revert to one or other of the parents.—BOSCOBEL.

[Our correspondent gives the best possible reply to his letter himself. It was because of the knowledge possessed by many at the time of the sale of the existence of another yellow Calla that the prices were what he considers low. Probably the "leading nurseryman" is satisfied his offer was refused if the vendor is not; he waited a little too long.]



ROSE JUDGING.

I AM much obliged to "An Old Showman" and Mr. Biron for their answers to my last letter, but I think we had better, now that the fray is actually beginning, postpone further discussion till after the season is over.

I do not want to have the advantage of the last word, but though it is difficult to maintain a controversy as to the meaning of a third person who does not answer for himself, I am still of opinion that the difference between Mr. Biron and myself is very slight. I may say that I can understand the possibility of a Rose of first-class form and size being so bad in colour or stain as not to be worthy of a point, or even to deserve minus one (not two, which would be going beyond the rules), but I think I have rarely, if ever, seen such a one shown.

"An Old Showman" is not convinced on the other matter, but will pardon me, I hope, if I say I do not see any solid answer to my arguments in his letter. On this head Mr. Biron makes me the best answer by referring me to the rule—"Size shall imply that the bloom is a full-sized representative specimen of the variety." I must acknowledge that literally taken this is against me. But, literally taken, it would also imply that a full-sized representative specimen of W. A. Richardson or Boule de Neige (a variety perfect in form, and only not shown on account of its smallness) would be reckoned of equal value as far as size is concerned, with a full-sized representative specimen of Ulrich Brunner shown by its side. Am I wrong in adding the old formula, "which is absurd?"

With many thanks to my opponents for their courtesy, I wish them and all rosarian readers of the Journal a glorious season in the coming feast of Roses.—W. R. RAILLEM.

[A wish in which we and all admirers of the queenly Rose will gladly share.]

MAIDSTONE SHOW.—JUNE 28TH.

IN a county so delightful as Kent, and a corner of it so pleasant as Maidstone, Roses are looked for as naturally as coals at Newcastle. It is impossible to imagine such a place without them. Even if it were not that Maidstone is the headquarters of those well-known nurserymen Messrs. G. Bunyard & Co., fruit and flowers would still be expected to abound. Roses unquestionably are grown there, and remarkably well too. In journeying down to the recent Show a foretaste was had of its pleasures in the masses of flowers seen in the wayside places. Roses are seen covering walls and trellises in countless gardens. At Maidstone a Society, or "Club" as it is there termed, is devoted to the queen of flowers, and numbers many earnest growers in its ranks. It is not a large Association, but it does good work, and there must be many cultivators in the portion of the county in which Maidstone is situated who might join it with advantage, thus extending its sphere of influence and giving it increased strength. Its financial position is safe, there being a balance of £5 15s. in hand on last year's operations.

The present season being a rather backward one the early shows are suffering somewhat, and in this case the entries were much below the average, several of those who are usually leading exhibitors having to stand down; the Exhibition, which was held in the Church Institute, was therefore somewhat thin. For this, however, the season is accountable, the Committee having evidently done all in their power to secure a satisfactory Show. The flowers, if not numerous, were of good quality, and the Secretary, Mr. Edwin Amies, had made excellent arrangements for their disposal, and for the smooth working of things in general.

For twenty-four blooms, the first prize being the Mayor's cup, Colonel Pitt, Turkey Court, was first, his flowers being delightfully fresh, though not large. The varieties were Etienne Levet, Hon. Edith Gifford, Mdme. Gabriel Luizet, Maréchal Niel, Earl of Dufferin, Caroline Kuster, Dupuy Jamain (very fine), Cleopatra, Mdme. Bravy, Mdme. Marie Cointet, Jean Ducher, Mrs. Baker, Mdme. Hippolyte Jamain, Victor Verdier, The Bride, Countess of Oxford, M. Noman, Princess of Wales, Ulrich Brunner, Souvenir d'Elise Vardon, Chas. Lefebvre, Anna Ollivier, Dr. Andry, and Comtesse Panisse. Mr. R. L. Knight was a very close second, his Etienne Levet, The Bride, Alfred Colomb, and Souvenir d'Elise being very good. With one or two exceptions they were bright, fresh, and clean. Mr. P. G. C. Bernard was third. In another class for twenty-four, the first prize fell to Mr. R. E. West for a capital box, in which Mdme. Gabriel Luizet, Marie Baumann, Dr. Andry, and Baroness Rothschild were very good indeed. Mr. R. L. Knight was placed second. His stand was rather uneven. Several blooms were very good, others decidedly weak. Colonel Pitt was third.

The class for twelve Teas brought out a very pleasing trio of stands. Mr. F. Warde had a beautiful one, for although the flowers rather lacked size, they were perfectly formed and in the pink of condition, easily securing the first prize. The varieties were Maréchal Niel, Souvenir d'un Ami, Madame Willermoz, Caroline Kuster, Alba Rosea, Madame Hoste, Hon. Edith Gifford, Anna Ollivier, Marie Van Houtte, Souvenir de Paul Neyron, The Bride, and Madame Lambard. Colonel Pitt was a good second, although one or two of his flowers were a little faded, and Mr. R. L. Knight was a close third. Mr. R. E. West had the best eight triplets, one of the best stands in the Show, his Madame Gabriel Luizet, Dr. Andry, Etienne Levet, and Marie Baumann being very fine. Colonel Pitt was second. In the class for twelve singles Mr. Henry Foster won, having Madame Gabriel Luizet, Marguerite Brassac, and Dupuy Jamain in very good condition. Mr. Chas. Foster was not far behind, but one or two of his flowers were weak. Mrs. Haynes was third. Mr. Henry Foster was again to the front with six Teas, Mrs. Haynes being second, and Mr. R. J. Balston third. The first named also had far the best four triplets, a bright, fresh, well-coloured collection. Mr. Balston was third. There was only one exhibit each in the classes for nine and six blooms, Miss Day receiving second prize in the former, and third in the latter. There were four stands of six in class 12, Colonel Pitt being first, and Mr. Chas. Foster second, extra prizes going to Mr. J. Pound and

Mrs. Johnson. Mr. Bernand won with six Teas in triplets, a very neat and clean lot of flowers, all being in capital condition. Colonel Pitt was a good second, he also having a beautiful stand. Miss Day exhibited the best spray, Miss Bensted being second, and Mrs. Amies third. Miss Bensted, Mrs. Amies, and Miss Day were first, second, and third for buttonholes. Mrs. Baldwin exhibited a charming collection of Roses not for competition.

A miscellaneous display of exceptional interest was made by Messrs. Bunyard & Co., consisting of fruit trees in pots grown in a cool orchard house and hardy flowers. The former were very healthy and admirably fruited. They comprised Alexander, Waterloo, Amsden June, Hale's Early, and Crimson Galande Peaches; Dryden and Stanwick Elruge Nectarines; St. John's Fig; Archduke and Royal Duke Cherries; Cellini and Oker Apples; St. Swithin's, Beurre Dumont, and Louise Bonne of Jersey Pears. Some of the Peaches, eighteen months old, were 3 to 4 feet high, and full of fruit. They are well worth showing in London. They also had some fine Strawberries, including a splendid dish of the new variety Competitor, which promises to turn out a valuable market Strawberry. It is dwarf, very prolific, and is said to carry well. This year it was in with Sir Joseph Paxton. They also had fine samples of James Veitch, the new White Knight, and Scarlet Queen, Green's President, and Sir Joseph Paxton. Two boxes of garden Roses were another bright feature of their display. These comprised such delightful kinds as the Mosses Little Gem, Blanche Morceau, Céline, Salet and Common, Copper Austrian, rugosa, Yellow Austrian and Rosa Mundi; and the Teas Ma Capucine, L'Ideale, Hon. Edith Gifford, Marie Van Houtte, Homère, Madame Hoste, Francisca Krüger, and Devoniensis. Mr. Edwin Amies, who is an amateur grower, exhibited three splendid baskets of James Veitch Strawberry. They were of great size, and indicated excellent culture. He also had some admirable fruit of Latest of All, a flattened conical fruit of delicious quality, but the plants do not appear to grow so freely as is desired.

RICHMOND FLOWER SHOW.

THE annual flower Show at Richmond is one of the most important of the general exhibitions in the neighbourhood of London, and that of the present season, which was held in the Old Deer Park on June 29th, proved to be one of the best that the Richmond Horticultural Society has yet held. Four large marquees were erected to accommodate the exhibits, and even with this spacious provision there was hardly sufficient room. The comprehensive nature of the schedule, and the valuable character of the prizes throughout, combined to account for this, and the latter were sufficiently good to bring some of the leading cultivators of the various classes of flowers, plants, fruit, and vegetables into competition. Moreover, there was an extensive display of miscellaneous exhibits, these constituting a feature of no small attractiveness. Groups were excellent both in the open and local classes, great taste in arrangement being displayed. Specimen plants were not so great a feature as of old, but that was to be expected, nor were Ferns and foliage plants equal in quality to what would have been seen had Mr. Offer's magnificent plants been in competition, but on the whole they were good. Flowering plants were satisfactory, Pelargoniums and Begonias being particularly fine. Fruit and vegetables filled a large tent and were splendidly shown, while the Roses must have astonished many, so excellent were the blooms. It seems as though we shall have a good show at the Crystal Palace on Saturday after all. Table decorations are rarely shown on so large and beautiful a scale as they were at Richmond. They formed a magnificent display and reflected the greatest credit on the ladies who were responsible for them. In the following notes as many particulars are given of the awards as space permits.

As usual at Richmond the groups were both numerous and fine. A beautiful arrangement from Mr. Fordham, Twickenham, was placed first, and a slight flatness was all the fault that could be found with it. Mr. W. Brown, jun., Marshgate, Richmond, was second; Mr. H. James, Norwood, third; and Mr. J. Currey, Salisbury, fourth. Mr. Mould was first with six stove and greenhouse plants, Mr. H. James second, and Mr. J. Currey third. Mr. W. H. Young, grower to F. Wigan, Esq., East Sheen, won easily with Orchids, his *Grammatophyllum Seegerianum* and *Cypripedium Lawrenceanum* scoring many points. Mr. S. Ryder, gardener to Chas. Young, Esq., Richmond, was second; and Mr. H. James third. Zonal Pelargoniums were best shown by Mr. Watts, gardener to H. Little, Esq., Twickenham, who had profusely flowered plants. Mr. Barnes, gardener to W. Grahame, Esq., Richmond Hill, was second; and Mr. E. Coombs, gardener to W. Furze, Esq., third. Show and Fancy varieties were also very fine, and Mr. C. Turner being among the exhibitors it is almost needless to say that he was first in each class. Mr. J. Wiggins also had some excellent plants. Mr. Watts won with Ivy-leaved; Messrs. Coombs & Challen following. Mr. C. Waut, gardener to F. Wigan, Esq., was the only exhibitor of Caladiums, and was placed first for some well-coloured plants. Mr. A. Meaton, gardener to J. B. Hilditch, Esq., Richmond, won with Gloxinias; and the best Begonias came from Mr. D. White, gardener to Mrs. Farnell Watson, Isleworth, who had large and well flowered plants. Mr. Portbury, gardener to W. Froy, Esq., was second. Mr. T. P. Debnam, gardener to A. Pears, Esq., was first with fine-foliaged plants, Mr. James second, and Mr. Currey third. Mr. Wilks, gardener to T. Cave, Esq., won with Ferns, a grand *Adiantum formosum* amongst them. Mr. Simmons' Fuchsias, though small, were well furnished and full of bloom, defeating looser plants from Mr. Wilks and Mr. J. Sallows. Coleuses were best shown by the latter.

Roses were abundant, and the large tent which was devoted to them and to table decorations was extremely beautiful. Mr. B. R. Cant had some beautiful blooms in his first prize stand of thirty-six trebles, notably Lady Mary Fitzwilliam. Messrs. Paul & Son, The Old Nurseries, Cheshunt, were second, and Mr. Frank Cant third. All the flowers were surprisingly good, being large, well coloured, and fresh. They promise well for Saturday's great show. The same remarks apply to the twenty-four singles with which Mr. Frank Cant won, Mr. B. R. Cant being second, and Messrs. Paul & Son, Cheshunt, third. Mr. Frank Cant again defeated Mr. B. R. Cant with twelves, Mr. Turner here being third. For twelve of one variety Messrs. Perkins & Sons, Coventry, won with a magnificent stand of Lady Mary Fitzwilliam. Madame de Watteville, shown by Messrs. Paul & Son, was the winning variety in the Tea section. In the amateurs' classes Mr. C. Warwick, gardener to J. P. Kitchin, Esq., and Mr. Hugh White, Highgate, secured the leading awards, the latter also being first for twenty-four in another section. He is a genuine working man exhibitor and staged admirable flowers. Mr. D. White and Mr. J. Parsons were prominent in the local section. Space does not admit of particulars of the table decorations, which were, however, an exceptionally beautiful display.

Fruit was excellent. Mr. T. Osman, gardener to L. Baker, Esq., Chertsey, won with a collection, and Mr. C. J. Waite was placed third, his Grapes being weak. Mr. W. Ford, gardener to W. H. Ellis, Esq., was first with black Grapes, showing three good bunches of Black Hamburgh, Mr. Osman second, and Mr. G. H. Sage, gardener to the Earl of Dysart, third, with the same variety. Mr. Osman won with whites, having three splendid bunches of Buckland Sweetwater. Mr. Ford was second with Foster's Seedling; and Mr. G. H. Sage third. In other Grape classes prizes were won by Messrs. Sage, Waut, T. P. Debnam, D. Campbell, and T. Wilks. Mr. Sage had some fine James Veitch Strawberries in his first prize collection of fruit in the local section. Mr. White won with Melons in both classes. Peaches and Nectarines were finely shown by Messrs. Burton, Simmons, Wilks, and Sage. The latter won with two dishes of Strawberries, and also with Figs; Mr. Debnam being successful with Cherries. Vegetables were finely shown, but space does not permit of particulars. It may be noted, however, that Mr. Waite had some excellent produce in the classes in which Messrs. Carter & Co. and Messrs. Sutton & Sons offered special prizes. He also won in competition for the Society's prizes, Messrs. White and Sage following.

A beautiful display of Roses in pots with a few shrubs from Messrs. J. Veitch & Sons were noteworthy amongst the miscellaneous exhibits. Mr. W. Iceton showed some of his large Palms with smaller foliage and flowering plants. Messrs. J. Peed & Son sent a handsome group of foliage and flowering plants. Messrs. B. S. Williams & Son had a very effective assortment, comprising a great variety of plants. Messrs. J. Laing & Sons were represented by one of their well-known groups, which included some splendid Begonias. Messrs. Barr & Son had a beautiful collection of hardy flowers, in which Paeonies were conspicuous. *Coreopsis grandiflora*, a great improvement on *C. lanceolata*, was much admired. Messrs. Collins Bros. & Gabriel had a fine display of Delphiniums, Paeonies, Campanulas, and other flowers. Messrs. Sutton & Sons showed a new white Gloxinia named Her Majesty, very pure and free; Duke of York, a handsome purplish red flower with white margin and of splendid habit; and some charming netted varieties; also fibrous-rooted Begonias Crimson Gem, very bright and free; and Duchess of Edinburgh, white margined with rose, a charming thing; together with a grand new Aehimenes named Rosy Queen, very large and free. Messrs. W. Cutbush and Son had a large and bright display of hardy flowers.

FLORAL FETE AT REGENTS PARK.

THE Flower Fête and Children's Floral Parade held by the Royal Botanic Society on June 22nd proved to be an extremely pleasant affair. Attempts to imitate the Fêtes of Southern Europe in England are always liable to be marred in our fickle climate, but on the present occasion the weather was delightful, and as the floral display was strengthened by two excellent bands it was not surprising to note a very large attendance. The Parade appeared to be the chief attraction. It took place in the broad drive leading from the back of the conservatory. There were 35 entries in all, comprising mail carts, goat chaises, tricycles, ponies, donkeys, and hammocks, all decorated with flowers. Some of the arrangements were very attractive, and reflected great credit on the children and ladies associated with them. Mrs. Chamberlain's mail cart was charmingly decorated with Ferns and Marguerites, while that of Mrs. Lepper was tastefully adorned with Lilies, Roses, and Ferns. Rhododendrons formed the principal flowers in Mr. Youens' first prize tricycle. A beautiful palanquin adorned with Roses, Grasses, and Maidenhair Fern was arranged by Mrs. Sperling, and was carried on the shoulders of four bronzed children, another lying asleep within. Miss Callard's choice of an exhibit—Lohengrin in his swan car covered with flowers—was one of the most noteworthy. The judging was performed by Sir Augustus and Lady Harris, and the prizes were awarded by the Grand Duchess of Mecklenburg Strelitz. The parade proved so popular and successful that it may be expected to become an annual affair.

Apart from it the great exhibition tent had been erected and was well filled with a beautiful display of flowers. During the early part of the afternoon it was thronged with visitors. Mr. H. B. May had a splendid display of Ferns admirably arranged, and was awarded a large

silver medal. Messrs. Collins Bros. & Gabriel had an effective exhibit of Pæonies, Delphiniums, Poppies, Lilliums, Irises, and other hardy flowers (small silver medal). A fine group of stove and greenhouse plants, rich in colour, came from Mr. H. James (silver-gilt medal). Mr. Mould staged some of his imposing specimen plants, and a silver-gilt medal fell to him. Mr. R. Scott, gardener to Miss Foster, had a large group of indoor and outdoor plants with a few Orchids interspersed; also a window box and hanging basket, receiving a silver medal for the former and bronze ones for the two latter. Mr. J. Bennett was awarded a bronze medal for a well furnished bamboo flower stand. Messrs. J. Peed & Son were represented by a grand group of Caladiums, of which they are now making a great feature. The plants were healthy and well coloured (large silver medal). Mr. C. Turner exhibited some of his splendid specimen Pelargoniums, both Show and Fancy. Messrs. Cheal & Sons had a collection of hardy flowers and two charming stands of Violas (large bronze medal). Messrs. Kelway & Son had a magnificent exhibit of Pæonies, Delphiniums, Pyrethrums, Gaillardias, and other choice hardy flowers, well meriting the large silver medal awarded. Messrs. Carter & Co. exhibited a bright collection of Gloxinias interspersed with Ferns (bronze medal). Messrs. Hugh Low & Son had a beautiful group of Orchids (silver medal). From Messrs. J. Veitch and Sons came many handsome shrubs and Conifers, such as *Spiræa astilboides*, *Abies orientalis aurea*, *Eleagnus pungens maculatus*, and *Hydrangea japonica Mariessi* (silver medal). Messrs. G. Paul & Son, Cheshunt, contributed Pæonies, Pyrethrums, and other herbaceous plants, with a bright mixture of Roses (large silver medal). Messrs. W. Paul & Son, Waltham Cross, had a fine display of Roses, both plants and cut flowers, also Pæonies and ornamental shrubs (large silver medal). Messrs. Barr & Son exhibited a good collection of bulbous and other hardy flowers (small silver medal).



FRUIT FORCING.

VINES.—*Early Forced Houses.*—When the Grapes have been cut the Vines should be thoroughly syringed to cleanse them of dust and insect pests. The worst of these is red spider, which in its countless numbers so impoverishes the leaves that they fall prematurely, and the buds are so ill-formed that the growths from them in the following year are weak and the fruit poor. Where red spider has disfigured the foliage and caused some of the leaves to fall, which is not an uncommon occurrence in early and hard forcing, laterals should be encouraged from the upper part of the bearing shoots, so as to excite root action and prevent the pruning buds starting into growth. These buds, though their leaves may have fallen, will not start provided there is growth above them to appropriate the sap, and they will usually perfect the embryonic growth and crop formation of the coming season. Where the basal and main leaves are fresh a moderate extension of the laterals, especially in the case of weakly Vines and those long subjected to forcing, should be encouraged from the extremities only; in any case they must not be allowed to interfere with the principal leaves. Syringe the Vines every evening until they are freed of dust and red spider, and then occasionally so as to preserve the foliage as long as possible. They must not be allowed to go to rest, or they will make a second growth late in the summer. Ventilate to the fullest extent day and night, and if there are moveable roof lights they may be removed in mild weather. Where, however, it is intended to lift the Vines and lay the roots in fresh compost near the surface, the roof lights must only be removed on condition that they are held in readiness to place over the Vines in case of heavy rains, as a wet soil is not favourable to lifting. There is no cleanser equal to the rain from the clouds, and a judicious removal of the roof lights frees the upper side of the foliage of mealy bug, red spider, and thrips, where they are quite safe from insecticides applied from beneath.

Grapes Colouring.—Those changing colour require plenty of air with abundance of heat, as nothing contributes so much to high flavour and finish as a circulation of rather dry warm air. The temperature should be maintained at 70° to 75° by day, and 5° to 10° lower at night; with sun heat 10° to 15° more by day may be allowed. Vines struggling with a heavy crop should not be subjected to so high a temperature as those which are luxuriant and carrying no more fruit than may be considered a fair crop, but rest must be afforded them at night by allowing the temperature to fall to 50°. Afford a thorough supply of water to the border, mulching with an inch or so of short manure. Outside borders in most cases have been sufficiently moistened by the recent rains. Moderate air moisture is still necessary for the foliage, damping down in the morning and afternoon, but there must not be any attempt at a close atmosphere, as that is fatal to colour and bloom, and is likely to induce "spot" in the tender-skinned white Grapes, such as Duke of Buccleuch and Muscat of Alexandria. The latter, and all Grapes that are long in ripening, must not be deprived of air moisture, nor be neglected for water and nourishment at the roots, or they will, especially Muscat of Alexandria, shrivel, or not swell to the size they would were

they properly fed. The moisture will not injure the Grapes if the atmosphere does not become stagnant; it should be kept moving by a gentle warmth in the pipes and ventilation constantly, a little top and bottom sufficing.

Late Houses.—The Grapes are later than usual, but thinning the berries is in most cases completed, or it only remains to go over the bunches the last time for the removal of superfluous or stoneless berries. To have highly finished berries thin them well, especially in the interior of the bunches, leaving the large-berried varieties, such as Gros Colman, not less than an inch apart, and the oval-berried varieties only a little less, allowing room for all to swell without wedging, and yet be so close as to form shapely bunches, such as will retain their shape when dished. An array of footstalks as well as berries is not pleasing, therefore aim at compactness rather than a sprawling bunch of loose berries. Do not spare the bunches where there are too many, but reduce them to the number which their size and the condition of the Vines warrant as likely to finish satisfactorily. It is well to err, if at all, on the safe side, as over-burdened Vines never finish their fruit well, and it will not keep sound long.

Firing and Ventilating.—When the Grapes are thinned is the time to get size into them, as they swell rapidly up to stoning, and then remain stationary for a month or six weeks. Cold nights render fires still necessary, and it is the reverse of economical to let the fires out now and lose size in the Grapes, then have to fire hard and long later on when the sun has less power to ripen them. All late Grapes require a high temperature and a long season, with abundant food at the roots and a plentiful supply of atmospheric moisture. Maintain the night temperature at 65°, 70° to 75° by day artificially. Admit a little air early in the morning, but never to lower the temperature, and increase it with the rising heat, which should go up to 85° or 90° from sun heat, and the longer that is kept the greater progress the Grapes make. Reduce the ventilation when the sun heat wanes, closing the house by the time it recedes to 85°, well damping the paths then, and the heat may rise 5° to 10° afterwards with benefit. In backward seasons like the present it is particularly desirable to make the most of sun heat, and aid it with artificial warmth. A little air at the top of the house at night will allow the vitiated atmosphere to change, and the foliage to become dry in the morning by the time the sun acts powerfully upon it, and if care is taken to increase the ventilation with the advancing sun scorching will be avoided.

Watering.—The Vines seem to "jump" with the soakings of rain the outside borders sometimes get in hayime. The rain is then warm, and charged with some ammonia and nitric acid; besides, where the drainage is thorough the soil is cleansed of its impurities, and fresh air takes the place of the old. It is much the same in watering inside borders, which seems to benefit the Vines most when applied from rain water tanks on rainy days. The moisture then given is ready for the Vines when a dry or bright period follows, and the food has been diffused in the soil, so that they have an opportunity of appropriating it. Soak the inside borders thoroughly whenever the soil is in the least dry, and follow with liquid manure where the Vines are carrying full crops. If the soil is light the liquid may be used rather thick, and the border may be mulched with short manure, which should be moistened occasionally, but not always kept wet. Sweetened horse droppings are suitable for heavy soil, farmyard manure or cow manure being better for light soils. The thing is not to apply too thick a coat, never more than an inch or two, and then add to it from time to time so as to keep that thickness, and so supply nutriment regularly. To let the border get and remain dry at the surface causes the roots to strike down in quest of moisture, and the result is the Grapes finish badly. Next year's crop is prejudiced through the wood not ripening well; the buds break irregularly, and the bunches curl, twist, and wither instead of elongating, whilst the Grapes which set often colour badly and shank.

Regulating the Growth.—Avoid an excess of foliage, and have all the leaves fully exposed to light. Do not occupy all the space at command with laterals, but leave some so that growth can be made successional, and that will encourage root action. The foliage should be rather thinner in the case of white Grapes than black. Muscats especially need the foliage and Grapes well exposed to the light. Avoid large reductions of foliage at one time; the merest point should be taken out of laterals and sublaterals, and then all the benefit is got out of extension without any of the disadvantages resulting from a confused mass suddenly reduced by armfuls, which produces a stagnation of the sap and a check on the roots. Vines extending may be allowed to make as much lateral extension as practicable, but remember that the principal leaves which nourish the buds to which the Vines are to be pruned must not be interfered with, affording them full exposure so that they may elaborate the sap, transmit the assimilated matter to the buds, and store food in the adjacent wood. Lateral growth is useful in assisting the canes or main rods to thicken, and this laying-on of new layers of wood is important, as by it sap is readily transmitted from the roots to the growths. Such extension, however, must be kept subordinate to, and not allowed to interfere with, the principal growths, or prevent the access of light and air to the main leaves.

THE KITCHEN GARDEN.

WELCOME RAINFALL.—Good rains have been very general and were certainly never more needed. Following the unusually severe frosts they will do much towards recovering the badly crippled Potatoes, Runner Beans and such like, and are also just in time to prevent Onions and other root crops from bulbing prematurely. Supposing all these

have been well thinned out and also kept free of weeds, another light hoeing should be given, and cracking would be further prevented if a mulch of grass from the mowing machine or other short material is given at once. A showery time is much the best for applying liquid manure, and in the case of Peas and Beans let the latter be given after a good over-night watering. It is simply wasted on dry ground and may easily do more harm than good.

BRUSSELS SPROUTS.—These may yet be planted with every prospect of remunerative late crops being obtained, and late planting is really desirable where those first put out fail early. Those put out among early Potatoes should not be overgrown, and it is not necessary to wait for the haulm to die off before lifting the Potatoes. Directly the intervening spaces are cleared mould up the rows of Brussels Sprouts, and they will then require little or no further attention.

BROCCOLI.—The rains have come just right for these, and if the plants are much longer kept in the seed beds they will be of little service. The bulk of Veitch's Autumn Protecting ought to be already well established, but later raised plants should also be planted in quantity, this variety being invaluable for lifting and storing for early and midwinter use. A good breadth of Snow's Winter White may well succeed the earliest Peas on warm borders, and Walcheren sometimes proves very serviceable if similarly treated. No manuring or digging is necessary or advisable. Simply clear the ground of all rubbish, well hoeing the surface, and then draw deep drills 30 inches apart. Should the ground be somewhat dry soak these drills with water or liquid manure over-night, and dibble out the Broccoli 2 feet, or 30 inches apart if the ground is rich in the drills. Successional and late varieties ought also to be put out as soon as possible. If they are planted on newly manured and deeply dug ground see that this is made very firm, the hardest Broccoli being grown on the most solid ground. Also give the plants good room, the rows of the strongest growers being placed 3 feet apart, and the plants 30 inches asunder in the rows. Broccoli ought to be kept as much as possible in the highest part of the garden where they will frequently survive any grown in the lower parts. They not unfrequently do remarkably well when planted in close succession to Peas and Strawberries, the ground only being cleared of rubbish, and not dug for planting.

BORECOLE AND SAVOYS.—The former cannot well be put out too soon, extra strong stems producing by far the most greens. It is not yet too late to plant though, and seeing how very hardy and serviceable they usually prove, room should be found for comparatively large numbers of them. Read's Hearting is particularly desirable, this giving a well-blanced and very mildly flavoured heart in addition to a good supply of greens. Both the tall and dwarf Scotch or Green Curled are valuable, while the Cottager's Kale, if grown strongly, is even more productive. All should be firmly planted 2 feet apart on fairly rich ground. The Buda is the hardest Kale of all, and requires the least room. In some seasons it is greatly appreciated owing to its lateness, greens being freely produced up to the middle of June. The rows of these may be 18 inches apart, 15 inches being allowed from plant to plant.

SAVOYS.—Of these again it is scarcely possible to grow too many, though they may easily be had too early and coarse. They succeed well on comparatively cold borders, and if the ground is fairly rich and firm, very serviceable hardy crops will be had by planting in quantity now. The Tom Thumb section need not be put out more than 12 inches apart, and these will be the first to give tender blanched hearts. Early Dwarf Ulm forms a close succession, and 15 inches apart each way is enough for these. The same space answers well for Dwarf Green Curled and Gilbert's Universal, while the later and coarser Drumhead should have an extra 3 inches each way.

PUDDLING PLANTS.—Drawing the roots of Broccoli, Borecole, Brussels Sprouts, Savoys, and such like through a puddle formed of a mixture of clay, soot and water so as to thoroughly coat them with this mixture is a good preventive of clubbing and grub attacks, and also prevents flagging. It is a very simple proceeding, and ought not to be omitted. When the plants generally are first put out a good watering ought to be given, this effectually fixing the roots.

PLANT HOUSES.

Zonal Pelargoniums.—Those plants required for winter flowering should, if not already done, be placed without delay in their flowering pots. Use for a compost good loam, one-seventh of decayed manure and sand. Press the soil firmly into the pots to prevent the plants making soft growth. When potted stand them on beds of ashes outside fully exposed to the sun.

French and Fancy Pelargoniums.—Those that flowered early and are past their best may be stood outside to ripen. If an increase of stock is needed the necessary cuttings may be inserted. It is a good plan to select strong cuttings and remove the point, so that when they start into growth three or four shoots are produced. These cuttings root with greater certainty if inserted in sandy soil in an outside border than if placed in pots and given cold frame treatment. On the former principle nearly every cutting can be relied upon to form roots. Late plants of early flowering kinds that are not wanted for flowering may be hard pinched or cut back, and stood outside until they start again into growth, when they may be transferred to 7-inch pots. These, if well cared for during the autumn and winter, and the shoots not pinched after the beginning of September, will flower profusely early in the season.

Ivy-leaved Pelargoniums.—These to flower well during the autumn

and winter must have their wood thoroughly matured; if grown soft they will not bloom satisfactorily. Place them outside in an open sunny position, and then when taken indoors in September they will flower profusely. These are useful plants for baskets, and cuttings may be inserted for this purpose as they can be obtained.

Tuberous Begonias.—Seedlings and plants raised from cuttings may be placed in 5-inch pots, which will be large enough to flower them in this season. For decoration they are invaluable in these sizes, and flower so freely that they are very attractive. They must not be grown too warm. We find that they do well in the greenhouse, or even in cold frames at this season of the year. If grown in heat the plants draw up weakly, and do not last for any length of time. If grown cool they will flower until autumn.

Chrysanthemums.—Those for large blooms will need constant attention in disbudding, watering, and syringing. The plants will be branching freely at this stage, and no more shoots than are really required should be allowed to extend. If aphides attack the points stamp them out at once by the application of tobacco powder. Keep the pots free from weeds and the plants from side growths; be careful not to overwater the plants. Those that have been cut back may be allowed to extend without further pinching. The number of shoots from each pot should be selected. Where three plants have been placed in each pot twelve or more shoots may be taken, each bearing a good bloom. Those required for cut flowers and decoration only may be pinched again at once. We pinch them well back, not merely removing the point of the shoot. It is a good plan where plants with single blooms are needed for effective arrangements to take cuttings from them, insert them singly in small pots, and root them in cold frames. Early flowering kinds should not be stopped again; allow the shoots to extend. Weak stimulants may be given if the plants are grown in small pots. One pound of nitrate of soda to 2 lbs. of superphosphate, mixed with 40 gallons of water, will be found excellent for these plants.

Calceolarias.—If seed has not been sown it should be done at once. A pan with a very fine surface should be prepared, the seed sown, gently watered, and stood in a shady place in a cold frame. Plants raised from seed sown some time ago may be pricked out singly into other pans 1 inch apart. Grow these on under similar conditions.

Callas.—These do best when planted outside in well prepared heavily manured soil. In planting break up the plants and remove the suckers, which may be planted for flowering in 5 or 6-inch pots, or thrown away if not required for stock. Plants bearing one or more spathes are very suitable for grouping, and in many establishments are even more useful than plants of a larger size. There is no difficulty in having plants in flower in succession over a period of six or seven months. Those for the latest flowering require to be kept perfectly cool throughout the winter and spring.

Salvias.—These may be planted out or placed in their flowering pots and stood outside. They give the least trouble when planted out. Some of the kinds deserve every attention, and large pyramidal bushes may be produced in one season. The best for spring flowering is unquestionably *S. gesneræflora*. Eupatoriums may be given the same treatment.

Carnation Miss Joliffe.—Plants rooted in heat may be placed in 4-inch pots, and finally into 6-inch. These may be grown for a time in frames until they are well established and bushy little plants, when they should be thoroughly hardened, placed in their flowering pots, and stood outside on a bed of ashes. The old stool plants may be turned out of their pots into light soil, and the grass layered. By this means a large stock of plants can be secured for winter and early spring flowering.

Tree Carnations.—Plants that are well established in 2-inch pots may be placed into 5-inch. They should be grown with the above until well established, and then placed into 7-inch pots and stood outside. Young plants of free growth in 5-inch pots may be placed into others 2 inches larger, and stood outside. These plants do well in a compost of three parts loam to one of leaf mould, one-seventh of manure and coarse sand. Care should be taken not to give them strong stimulants.



APIARIAN NOTES.

NORTHERN WEATHER.

Up to the 25th inst. the weather for seven weeks was cold with heavy rain, and during all that time there were only seven fair days. The temperature was never above 40° on any night. Snow and hail showers were frequent. There has been one day only on which honey could be gathered, and bees have still to be fed to keep them alive.

SWARMS.

These are erratic, and often leave their hive quickly, while some linger several days. There are two causes for this: one is they have been prevented swarming through stress of weather at the proper time before young queens are hatched, then after they

are hatched several go off with the swarm until one only remains. They are excited through the queen's excitement, and leave the hive. Stranger bees joining the swarm cause queen encasement with a like result. The want of honey is another direct cause of the bees leaving their hives to the disappointment and dismay of the bee-keeper. Timely and liberal feeding prevents their leaving, and the bee-keeper when engaged with several swarms at about the same time will do well to guard the entrance of the swarms with excluder zinc until he has an opportunity of examining the hives and liberate the encased queens, selecting the one to be queen regnant and destroying the others; the excluder zinc should be removed on the first opportunity, as it hinders the bees greatly.

FEEDING.

It is well known that I do not approve of feeding when it can be avoided, but on the other hand I know how beneficial it is to bees and bee-masters when honey in the fields or stores is scarce. Stimulative feeding at any time is a waste of bee energy. Bad for bees as the present season has been, I have several stocks that have never been fed, and they are as good as those that were; nay, they are the best workers at present. The best one is a first Syrian cross, the only one making an attempt to work in supers, but the weather prevents any advance. What say ye, Mr. Hallamshire, to that?

PUNICS.

These were the first to swarm, but only five minutes before a Carniolan. I am perfectly satisfied that these Carniolans are pure and of a superior strain to Mr. W. H. Ley's. In fact from what I have seen and read about the different varieties of bees I believe there are few pure strains imported into this or any other country. Certainly these extra yellow Italian bees are not pure Italian Alp ones, nor are the striped Carniolans a pure race. The Punics appear to be pure, and if we had only a week or two of settled warm weather we would be able to have their honey gathering qualities well tested. On the 24th a pure Punic carried honey for several hours when all others were comparatively idle, but whether it was from flowers or from other hives I cannot say.

HIVING.

Some time since I described my swarm catcher and hiving apparatus, which I have used in my apiary so long. Several bee-keepers visited me on the 21st, and I may mention that more bees were lost on that day from storm and cold than on any other day or perhaps week of the whole year; yet on the following day several swarms came off. I had one of these swarms secured in their presence, and for a short time rested it near the hive it was to occupy, then slipped it on the top of the hive inside the super protector, when in less time than I take to write this the bees were all in their permanent hive, a very superior and safer plan than the primitive one of shaking the bees in front of the hive with either the loss of a day's honey gathering or perhaps the loss of the swarm. My visitors were both surprised and satisfied. This hiving box is one of the most useful appliances in the apiary.—
A LANARKSHIRE BEE-KEEPER.

SEVERAL EGGS IN ONE CELL.

I THANK "A Lanarkshire Bee-keeper" for his reply to my note. Doubtless he is right in assuming that a scarcity of bees is the cause of the queen laying several eggs in one cell, as I find with the brood increasing the work in the hive is going on in a more orderly manner. As he wishes to know the history of the queen I must give him the history of the stock of bees in question, so far as I know it. In August last year I found the bees clinging to the side of a stump of a tree in a wood. Two or three days before that they had been burned out of another old tree stump close by, which was their home, and part of them destroyed by some marauders who were after their honey. These, I suppose, had taken flight, and settled where I found them. I put them into a straw skep, took them home, and transferred them to a bar-frame hive. A little later I put the bees from two other hives (which were given me by a neighbour for taking the honey from them for him, and who would otherwise have killed them, as he still adheres

to the old but cruel practice of destroying the bees when he takes the honey himself) with them. I first took their queens away before joining them to mine. I need hardly say I fed them through the autumn and again in the spring, as they had nothing to begin with but the foundations to work on. On May 1st a small swarm issued from them, which I returned to the hive, intending to take the queen away, but missed seeing her as they went in, so I must leave it for your correspondent to decide. I am obliged to him for calling attention to my defects, and shall be glad if he will put me right at any future time. If he will look at my note again he will see I stated eggs in cells, and cells in bars, which I thought was right. It may be a clumsy description; perhaps bars need not have been mentioned.—R. M.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vines and Peaches (C. A. and G. G.).—Your letters arrived one post too late for being satisfactorily answered this week.

Aspect for Span-roof Houses (T. K. A.).—With the houses pointing east and west the summer crops, such as Grapes and Tomatoes, are almost invariably better on the south than the north side. For low-growing plants in winter we have not observed the same difference. We prefer close to open staging generally, but with provision for the heat to pass between the stage and the sides of the house. Sheets of galvanised corrugated iron covered with crushed shells or fine shingle make good stages.

Nitrate of Soda (J. S.).—This varies in fineness—in the size of the crystals. It is open to adulteration with common salt, and the crystals of both are similar. If you have a guarantee of 90 per cent. purity from a reliable firm or dealer the sample is far from being bad, and a dressing of such quality would act with effect on crops. We do not undertake to analyse samples. Nitrate of soda cannot be kept too dry, as, like salt, it attracts moisture. Try the effect of both samples on grass or weeds. One sample is much coarser and the other finer than the kind we use.

Maggot in Onions (G. S.).—The maggots have been caused by a small fly, though you failed to observe the attacks. There is no remedy when the plants are in the condition of those you send, though the dressing may perhaps save some others. Perfectly clean plants if transplanted on another piece of land would probably escape injury. We have seen excellent beds by transplanting thinnings from a neighbour's garden. Such varieties as the Queen sown now might produce useful small bulbs. Sow Tripoli Onions towards the end of July. These are seldom seriously injured by maggots. You should have adopted preventive and repressive measures sooner, though when the attacks are persistent it is sometimes most difficult to save the crop.

The Common Moss Rose (Berks Inquirer).—The true old Moss Rose we can obtain from at least fifty nurseries, and as for obvious reasons we cannot publish such a long list of addresses, while to select one out of the number would be invidious, we are compelled to leave the matter of procuring plants to your own discretion. Plenty of Moss Roses will be seen at shows, and nurseries are open to inspection by visitors. The Moss Roses sold in such quantities in London are grown in the rich deep highly manured soil of market gardens, and charming blooms or half opened buds are produced. Plants not long established in, it may be, much less favourable soil, are, to cite your description, "poor things" in comparison. Moss Roses are raised freely by layers of healthy shoots of the current season's growth, slightly notched, and pegged firmly into the soil in late summer or early autumn. We have also raised many plants by slips or cuttings with a heel, inserted in sandy soil, surfaced with sand, and kept close for a time, moist, and shaded to keep the leaves fresh in August or September. The cuttings were of healthy wood, shortened to 5 or 6 inches in length; the leaves, but not the buds, cut off except two or three at the top, which rested on the sand when the cuttings were inserted firmly in position. You may or may not have procured the genuine Moss Rose, we cannot say without seeing it, but we know that soil and management exert a great influence on the growth and flowers.

Grapes not Colouring—Shanking (Outsider).—We gave you advice on the 7th inst., and you tell us on the 27th that you will carry it out. We should have applied the superphosphate of lime and gypsum as soon as possible. Certainly we did not mean, nor did we say, "first fork in the slaked lime;" on the contrary, we said, apply it "in the autumn." You did not tell us you had used lime, therefore, after considering your treatment, we advised a strong dressing, such as we have known under similar conditions to have had an excellent effect. You can modify the quantity in accordance with that previously given, and if the roots are so matted as you indicate, mix it with a quantity of wood ashes in fresh loam. This mixture will do good. Then follow in the spring with the chemicals we advised as an addition to your own treatment. The Vines are overcropped, or, in other words, they might gather the essentials for perfecting a less, but not the present number of berries. The bunch you have sent is unusually full. We should have taken several out of the interior, and those remaining would have been better, while the bunch would not present a less close and solid appearance. We advised clay marl if the soil is light because of the trace of iron it contains. This is essential for the production of chlorophyll, which is the active agent in colouring foliage, flowers, and fruit. Potash, also, acts beneficially on the chlorophyll. You ought not to fail with such Vines in producing first-class fruit.

Weedy Lawn and Walks (W., Reading).—Either the soil was not free from weeds, or roots with latent buds of perennial plants or seeds have been introduced in some way or other. Possibly also the soil may be poor, and fine grasses dwindle away. We have seen lawn sand when properly applied according to instructions very materially stimulate the growth of grass and subdue broad-leaved weeds on which it rests. We have also known it do injury, through having been used in excess, while in some cases it appears to have had small effect, probably because the weather was not favourable to its operation. The sand should rest on the leaves of weeds it is intended to destroy. It does not rest on the blades of grass to the same extent, and if used in the right quantity, though it may impart a brown tinge for a time, we have seen this followed by a free growth of bright green grass. We know nothing of the relative differences or values of lawn sand in the market, and suspect that the differences in effect are mainly due to methods of use or weather influences. We have no records of birds or animals sustaining injury through the use of lawn sand in gardens. In reference to weed killers to which you also refer, our reply is substantially the same on all points. We have tried three kinds, and they all answered the purpose in view. It is open to anyone who is in doubt as to which is the "best" for his walks to try similar small experiments, and thus decide the matter in the best possible way. The cost is trifling.

Anthracnose (D. H.).—This is a disease of a fungoid nature, *Spaceloma ampilinum*, D. By. Anthracnose attacks the leaves, growing shoots, and young berries of the Grape Vine. The leaves, when first affected, show minute blackish-brown spots, surrounded with a slightly raised darker coloured margin. These spots ultimately turn grey in the centres, and the diseased parts crack across or separate from the surrounding healthy portions, leaving the leaves full of ragged small holes. The disease manifests itself in much the same way on the shoots. As it grows, however, the spots become darker in the centre, run together, and form elongated diseased areas. The parasitic fungus eats gradually into the wood, and thus scars are made, the mycelium of the fungus passing the winter in the living tissues surrounding these places. Anthracnose on the fruit, or bird's-eye rot, as it is commonly called in (about St. Louis) U.S.A., first appears as a blackish or brown circular spot surrounded by a narrow dark ring. These spots are frequently less than one-eighth of an inch in diameter, and undergo various changes of colour. The outer rim in some cases remains dark brown, and inside this is a broader zone of a beautiful vermilion with a silver greyish centre. This is most pronounced in the spots over an eighth of an inch across, for the smaller spots assume the greyish white colour only, and retain it throughout their growth. When the berries are small the disease causes them to turn brown, shrivel, and become beautiful (to a fungologist, not pomologist), by the little pinkish pustules which appear on the surface. On larger fruit, say stoned, the berries affected develop unevenly, the attacked side being flattened, similar to Muscat of Alexandria Grapes when scorched or scalded on the upper side. Anthracnose, though called a rot, is not characterised by a softening of the tissues of the leaves, shoots, or fruit, but they are destroyed, slowly collapse, and at the same time become hard and wrinkled. It is the worst of all Grape diseases, and the most difficult to cure, because of its resting within the host, but it cannot resist early treatment with Bordeaux mixture.

Names of Fruits.—Notice.—Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (P. P., Shepton Mallet).—The Apple more closely resembles a Dorsetshire variety known as Iron Pin than any other in our list. We can place our hands on firmer and better Apples.

As you like the variety, by all means grow it, but we should not recommend it for general cultivation. (G. M.).—It is impossible to name Strawberries with certainty from a few fruits and leaves, and we can only say that yours resemble President.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (S. P.).—*Dipladenia boliviensis*. (J. F.).—*Echium vulgare*, the Viper's Bugloss.

COVENT GARDEN MARKET.—JUNE 29TH.

BUSINESS brisk, but market heavily supplied with outdoor goods, and prices lower.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, Tasmanian, per case	2	6	to	5	Oranges, per 100	4	0	to	9
Grapes, per lb.	1	0	3	0	Peaches, per dozen	4	0	12	0
Lemons, case	10	0	15	0	St. Michael Pines, each	3	0	6	0
					Strawberries, per lb.	0	3	0	9

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Beans, Kidney, per lb.	0	9	to	1	Mustard and Cress, punnet	0	2	to	0
Beet, Red, dozen	1	0	0	0	Onions, bunch	0	3	0	5
Carrots, bunch	0	4	0	0	Parsley, dozen bunches	2	0	3	0
Cauliflowers, dozen	2	0	3	0	Parsnips, dozen	1	0	0	0
Celery, bundle	1	0	1	3	Potatoes, per cwt.	2	0	5	0
Coleworts, dozen bunches	2	0	4	0	Salsafy, bundle	1	0	1	6
Cucumbers, dozen	2	6	4	6	Scorzoneria, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Seakale, per basket	0	0	0	0
Herbs, bunch	0	3	0	0	Shallots, per lb.	0	3	0	0
Leeks, bunch	0	2	0	0	Spinach, bushel	3	0	3	6
Lettuce, dozen	0	0	1	6	Tomatoes, per lb.	0	6	0	9
Mushrooms, punnet	1	6	2	0	Turnips, bunch	0	6	0	8

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.

Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms	2	0	to	4	Mignonette, 12 bunches	2	0	to	4
Bouvardias, bunch	0	6	1	0	Orchids, per dozen blooms	2	0	8	0
Carnations, 12 blooms	0	6	2	0	Paeonies, dozen blooms	1	0	2	0
Carnations, Malmaison, 12 blooms	2	0	4	0	Pansies, dozen bunches	1	0	2	0
Carnations, dozen bunches	4	0	6	0	Pelargoniums, 12 bunches	4	0	9	0
Cornflower, dozen bunches	2	0	4	0	" scarlet, 12 bunches	4	0	6	0
Eschscholtzia, doz. bunches	2	0	4	0	Pinks, dozen bunches	2	0	4	0
Eucharis, dozen	2	6	5	0	Polyanthus, dozen bunches	1	0	2	0
Fuchsias, per bunch	0	6	1	0	Poppies (various), dozen	1	6	6	0
Gardenias, per dozen	2	0	4	0	" bunches	1	6	6	0
Lilium longiflorum 12 blooms	2	6	4	0	Primula (double) 12 sprays	0	6	0	9
Lilium (various) dozen blooms	1	0	3	0	Ranunculus, dozen bunches	3	0	6	0
Maidenhair Fern, dozen bunches	4	0	6	0	Roses (indoor), dozen	0	9	2	0
Marguerites, 12 bunches	2	0	4	0	" (outdoor), doz. bunch.	4	0	9	0
Myosotis or Forget-me-not, dozen bunches	2	0	4	0	" Red, per doz. blooms	1	0	2	0
					" Tea, white, dozen	1	0	3	0
					" Yellow, dozen	2	0	4	0
					Spiraea, dozen bunches	4	0	6	0
					Sweet Sultan, doz. bunches	3	0	6	0
					Tuberose, 12 blooms	0	4	0	9

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitae (golden) dozen	6	0	to	12	Lobelia, per dozen	3	0	to	6
Arum Lilies, per dozen	6	0	9	0	Lycopodiums, per dozen	3	0	4	0
Azalea, per plant	2	0	3	0	Marguerite Daisy, dozen	6	0	12	0
Begonia, per dozen	6	0	12	0	Mignonette, per dozen	4	0	8	0
Calceolarias, per dozen	4	0	8	0	Musk, per dozen	2	0	4	0
Cupressus, large plants, each	2	0	5	0	Myrtles, dozen	6	0	9	0
Dracaena terminalis, dozen	24	0	42	0	Palms, in var. each	1	0	15	0
" viridis, dozen	12	0	24	0	" (specimens)	21	0	63	0
Erica various, per dozen	12	0	24	0	Pelargoniums, scarlet, doz.	2	6	5	0
Euonymus, var., dozen	6	0	18	0	" per dozen	8	0	15	0
Evergreen, in var., dozen	6	0	24	0	Rhodanthes, per dozen	6	0	8	0
Ferns, in variety, dozen	4	0	18	0	Saxifraga pyramidalis	1	6	2	0
" (small) per hundred	8	0	12	0	Spiraea, per dozen	8	0	12	0
Ficus elastica, each	1	6	5	0	Trailing plants (various), per dozen	3	0	9	0
Foliage plants, var., each	2	0	10	0	Tropaeolum or Nasturtium per dozen	4	0	6	0
Fuchsia, per dozen	4	0	9	0					
Genista, per dozen	6	0	10	0					
Geraniums, Ivy	4	0	6	0					

Bedding Plants in variety in pots and in boxes.



A FARM SURVEY.

VERY interesting, and withal instructive, is the work of farm inspection with a view of purchasing, or rather of advising the would-be purchaser. Many a time and oft has it fallen to our lot to do this, and many a farm have we had to buy subject to decisions based upon the report of our survey. The present time

of year is decidedly the best for this work, because a clear idea can be had of the quality and condition of the land, as well as of the character of the tenant, and the degree of skill possessed by him, if only he is present during the survey. These are the essentials, the points of most importance amidst numerous minor details, which influence our judgment and enable a sound and reliable opinion to be formed of the whole generally as property, and of the land particularly, as to whether it is likely to prove a profitable investment.

At midsummer the land is like an open book, easily read, for the crops show plainly its condition and requirements. The recent survey of several dairy farms in the Stilton cheese district proved, therefore, exceptionally interesting. It showed us that the prosperity of Stilton cheese makers throughout the depression was owing to the production of an article for which they have practically a monopoly, and not to superior ability in farming. On the contrary, very much of the pasture is becoming impoverished by the suicidal practice of incessant grazing without anything like a periodical or systematic application of manure. "Manure!" say they, "where are we to get it?" Any mention of chemical manure is received with the stolid indifference of absolute ignorance. Depend upon it, if technical education is to make way in agriculture there must be district trial stations, and not mere single central county stations. It must be shown how invaluable chemical manures are for all soils, how in them economy and efficiency are in most admirable combination, how upon their use rests the future of farming, how entirely possible it is in that future for prosperity to return to agriculture on the wings of science. We must have a better system of cultivation if we would have better crops. We were repeatedly told in our survey that the scant herbage on so much of the pasture was owing to drought and a backward spring. From much experience in reclaiming such pasture we knew such statements were altogether wrong and misleading. On one farm, the meadows stocked with sheep and cows were entirely satisfactory, there being excellent pasture everywhere, even where closely cropped, and no robbers of the soil, such as Thistles, Nettles, or Rushes were to be seen. The other meadows laid in for hay had an abundant crop, attributable, as we found, to the withdrawal of the stock early in March, and to the judicious use of sheep upon it. Still further evidence of good management was afforded by a stack of last year's hay in a locality where most other farmers had been buying hay in spring, and we were indeed fortunate in the purchase of that farm at a price upon which the rent would pay 5 per cent. interest, and in securing the excellent farmer of it as our tenant.

It is indeed remarkable how custom tells even in the use of sheep. In Leicestershire sheep-folding on grass is not customary, yet the benefit to be derived from it should be obvious enough in a county with so much poor pasture. Many of the graziers do give the ewes some cake in winter and spring; if this were only done in small folds at night, pasture and sheep would be nourished at the same time, yet we know many a farm without a single hurdle upon it. Why indeed should there be, when they would not be turned to account? No better land could be had for wintering sheep than the uplands of High Leicestershire; sound and dry, it is admirably adapted to winter folding. If only the advantages of the practice were realised there, the flock would assume a degree of importance not hitherto accorded it. Instead of being regarded as an incubus, as the low price of sheep has caused it to be recently, it would be estimated at its true value, and the production of mutton would be quite a secondary consideration. Fertility of soil would be regarded as the basis of all successful farming, and the flock would be turned to account for promoting it.

We have repeatedly called attention to the especial value of 20 or 30 acres of arable land on a dairy farm, for supplying corn,

straw, green crops, and roots for home use. Our survey showed us how such an apparent boon was regarded by the dairy farmers as a positive nuisance; "for," they said, "it swallows up all the best of our manure, and robs the pasture." With pasture in the proportion of about seven to one of arable the fallacy of this statement was obvious. Here, again, the aid of chemical manure was calculated to help to set things right, and only to help. Even those few acres of arable land were foul with weeds, cold and wet from deficient drainage, corn crops stunted and yellow. So mismanaged arable land is a very questionable blessing, and while the British farmer bungles at his work in this fashion he will continue to be a much-advised man. He must be while it is patent to outsiders that his work is slovenly, aimless, and practically abortive. Our survey only serves to confirm former impressions, to make assurance doubly sure of the fact that there is a general lack of thoroughness in soil cultivation both on arable land and in permanent pasture.

WORK ON THE HOME FARM.

Hoose last autumn, a winter on washed-out hay, a late spring, and a turn-out on pasture in a low enfeebled condition, has caused serious losses among the store cattle of graziers, and much trouble also among the survivors. Hundreds of beasts will require a summer's grazing to become at all fleshy; if that is done in view of selling them it may answer, but if they are again to pass through another winter in a state of semi-starvation, and subjected to exposure to all changes of weather, they had better be got rid of in the autumn. It cannot answer to keep stock under such conditions; profit is an impossibility. It is mere waste of time to suffer cattle to become very low in condition in winter and to try now by means of tonics and grazing to keep them going. Markets of the last week or two have been crowded with cattle and sheep by farmers having to meet the rent day, which in many localities falls on or about the longest day. This has again brought down prices below any possibility of profit, and is much to be deplored. There are complaints of a very low yield of milk in some herds this summer, cake having to be used. Judging from what we have seen there can be no doubt that even at midsummer some herds are on short commons. The truth is so many farms are overstocked that the late haysel is a serious matter for the cows, the pasture being eaten off so closely that they cannot find enough food upon it.

Aftermath is likely again to become merged in the earlier growth so long is it left before mowing, and the cows suffer accordingly. It is far better to keep fewer cows, to do them well, and to mow earlier. In order to do this the grass must be laid in early in March, and not be kept stocked till the end of April, as is so frequently the case.

As the lambs are weaned the over-age ewes are withdrawn from the flock, and at once put in folds to fatten. It is a good rule to clear off all doubtful animals from the farm once or twice a year. It is better to do this even at a loss than to risk a greater one by keeping them through the winter, and then be obliged to part with them because supplies of store food run low. The lambs have been held over for autumn folding, as prices at the lamb sales have been ruinously low. We may do better with them as early hoggets, but shall buy no cake, keeping rather to mixed home-grown corn. Times are too hard to afford the use of cake.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1892. June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 19	29.885	57.9	49.7	S.	55.5	66.1	46.1	110.9	41.2	0.063
Monday .. 20	29.854	57.3	50.6	S.W.	55.2	67.1	44.7	117.7	39.2	0.040
Tuesday .. 21	29.920	61.9	54.0	W.	55.2	69.9	44.9	118.9	38.3	0.039
Wednesday 22	29.916	62.4	57.0	S.W.	56.2	74.1	55.9	119.9	54.0	0.296
Thursday .. 23	29.513	53.3	53.1	S.E.	58.0	66.4	53.0	97.8	52.2	0.604
Friday .. 24	29.998	62.9	54.9	S.W.	56.5	72.9	46.7	119.9	40.0	—
Saturday .. 25	29.995	62.3	56.9	S.W.	57.0	69.8	51.1	107.6	47.1	—
	29.869	59.8	53.7		56.2	69.5	48.9	113.2	44.6	1.042

REMARKS.

- 19th.—Brilliant morning; frequent showers in afternoon and evening, and one heavy one at 3 P.M.
 20th.—Brilliant early; overcast morning; heavy showers in afternoon.
 21st.—Brilliant early; fine, with occasional sunshine during the day; a little rain in evening.
 22nd.—Rain early; occasional sun in morning; bright, warm afternoon; cloudy evening.
 23rd.—Continuous heavy rain from 3 A.M. to 2 P.M.; a little sun after 4 P.M.
 24th.—Generally sunny and bright, but cloudy occasionally.
 25th.—Fine and pleasant, but not much bright sunshine; a little drizzle in evening.
 A rather rainy week with one very wet day, but a good deal of bright sunshine. Temperature very near the average.—G. J. SYMONS.

